VOLUME LI NUMBER TWO

THE NATIONAL GEOGRAPHIC MAGAZINE

FEBRUARY, 1927

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ARTICLES and photographs are desired. For material which the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resulting given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the expedition of Admiral Peary, who discovered the North Pole.

NOT long ago The Society granted $25,000, and in addition $75,000 was given by individual members to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people.

THE Society is conducting extensive explorations and excavations in northwestern New Mexico, which was one of the most densely populated areas in North America before Columbus came, a region where prehistoric peoples lived in vast communal dwellings and whose customs, ceremonies, and name have been engulfed in an oblivion.

TO further the important study of solar radiation in relation to long-range weather forecasting, The Society has appropriated $60,000 to enable Dr. Charles G. Abbot, of the Smithsonian Institution, to establish a station for four years on Mt. Brukkaros, in Southwest Africa.

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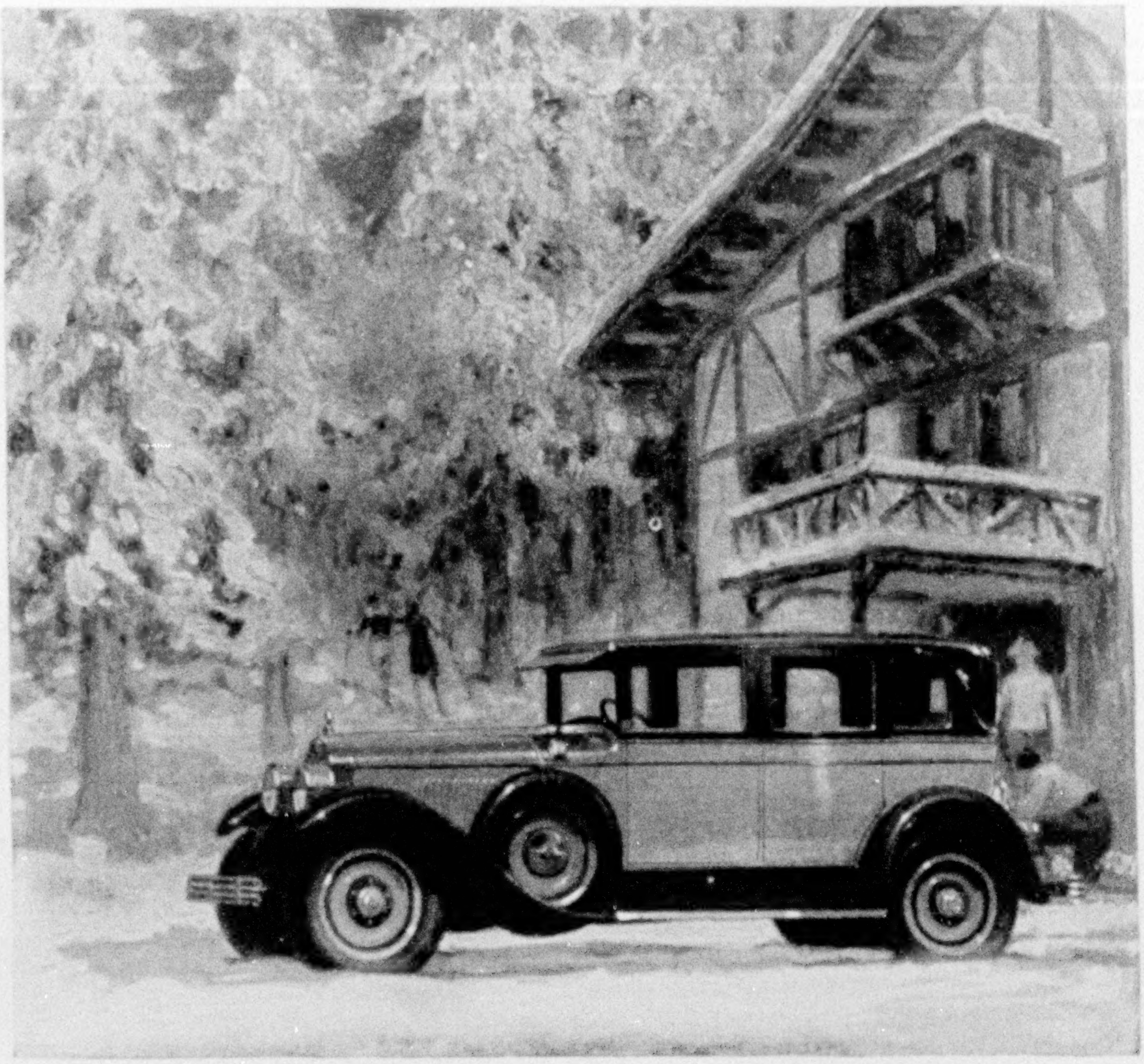

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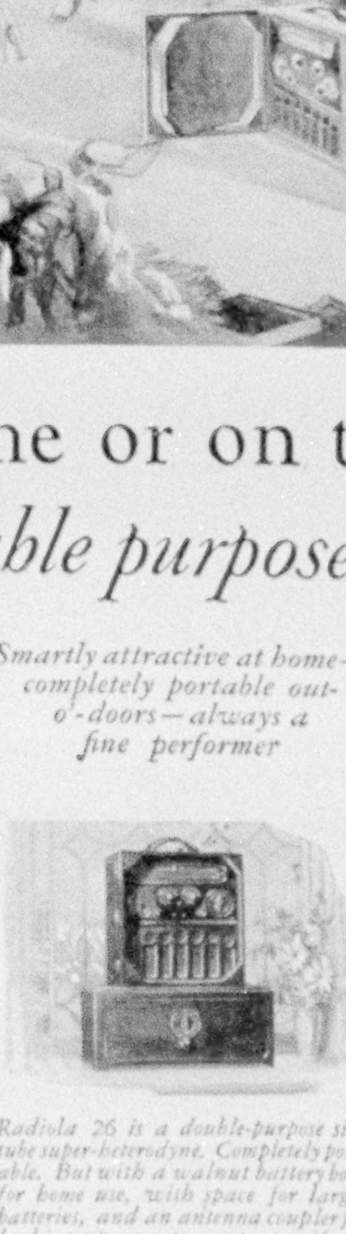

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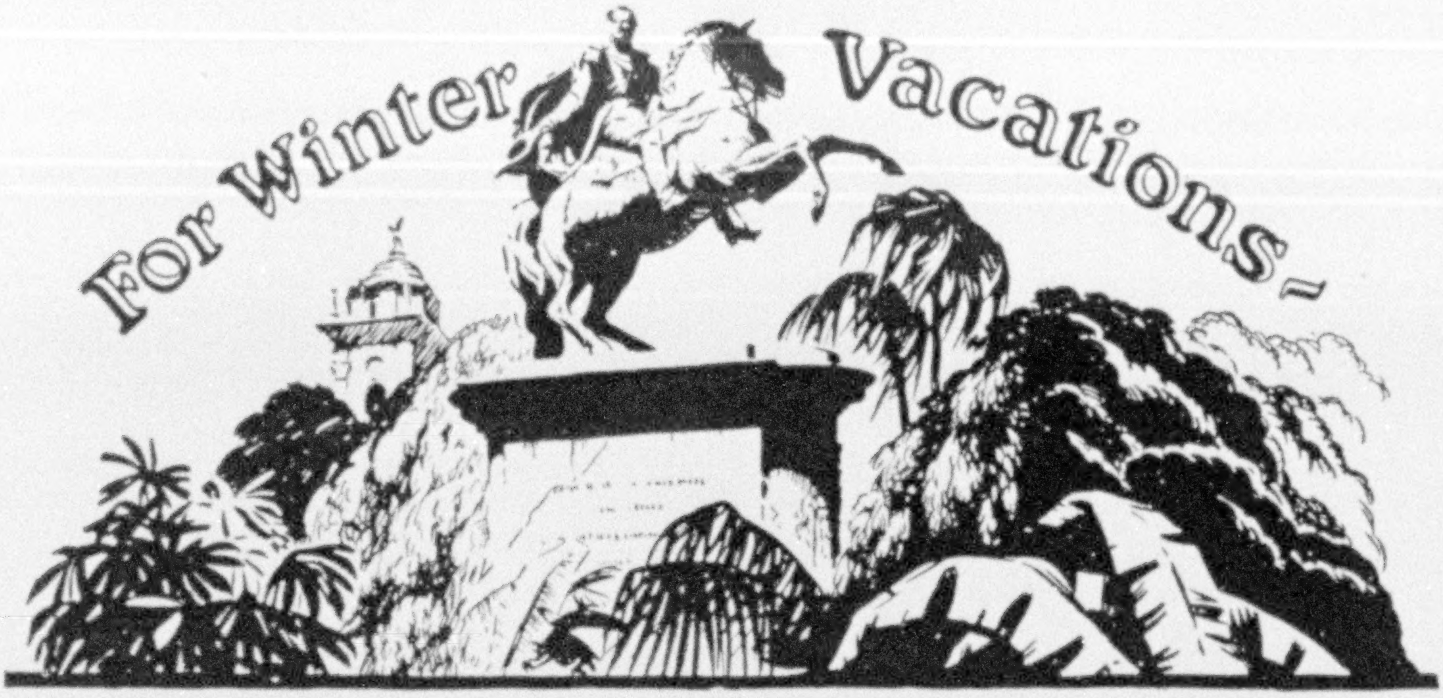

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Now comes the time of year when the telltale stethoscope finds hearts more aflutter, when pulses beat with ardency renewed.

And no wonder! For just in the offing is St. Valentine's, the day set apart by the Saint of Hearts for all true lovers . . . filial, fraternal and romantic . . . to play the roles of Romeo and Juliet, or of Darby and Joan.

In such a crisis, adolescent youth seeks an outlet for his welling emotion in a bit of lacy paper, a red heart or two, a sugary quatrain or sonnet.

But we elderly folk, of twenty and beyond, must find a more lasting and worthy expression of our sentiment.

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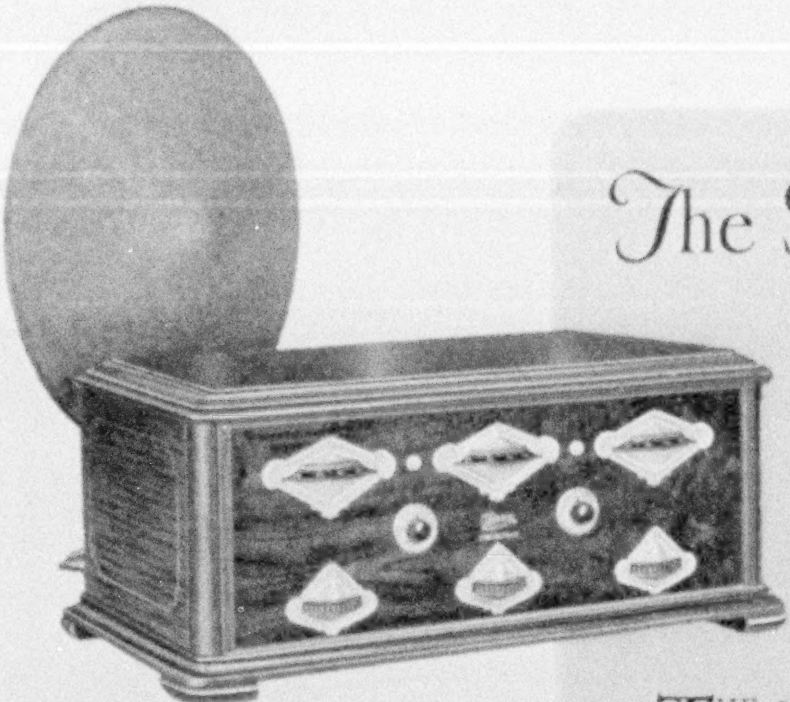

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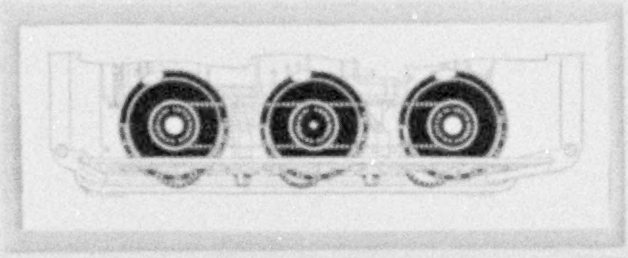

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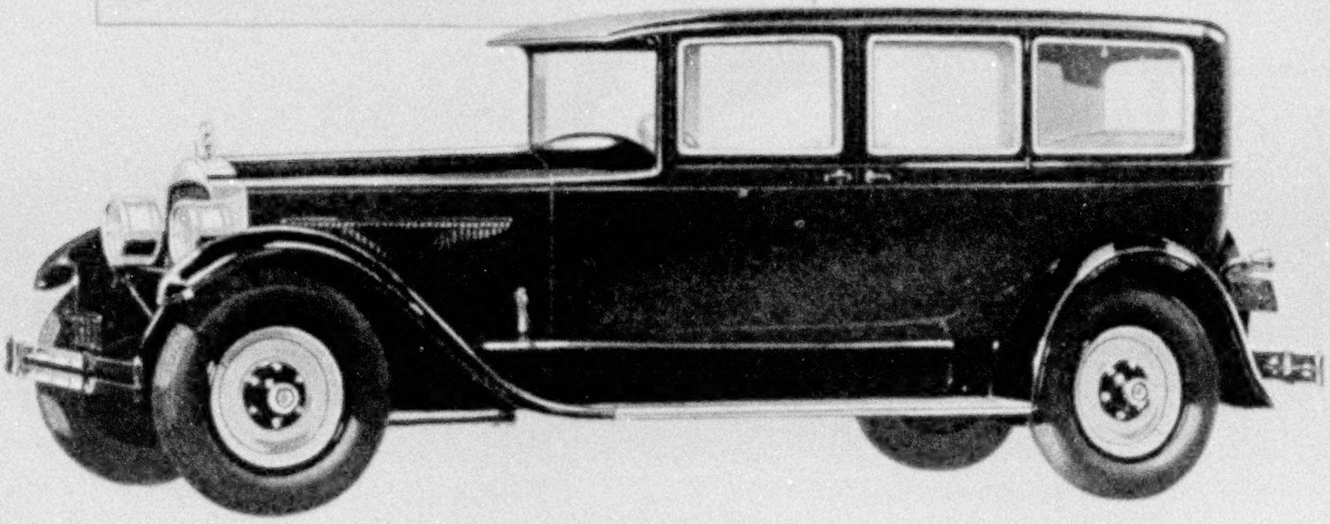

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PACKARD

ASK THE MAN WHO OWNS ONE

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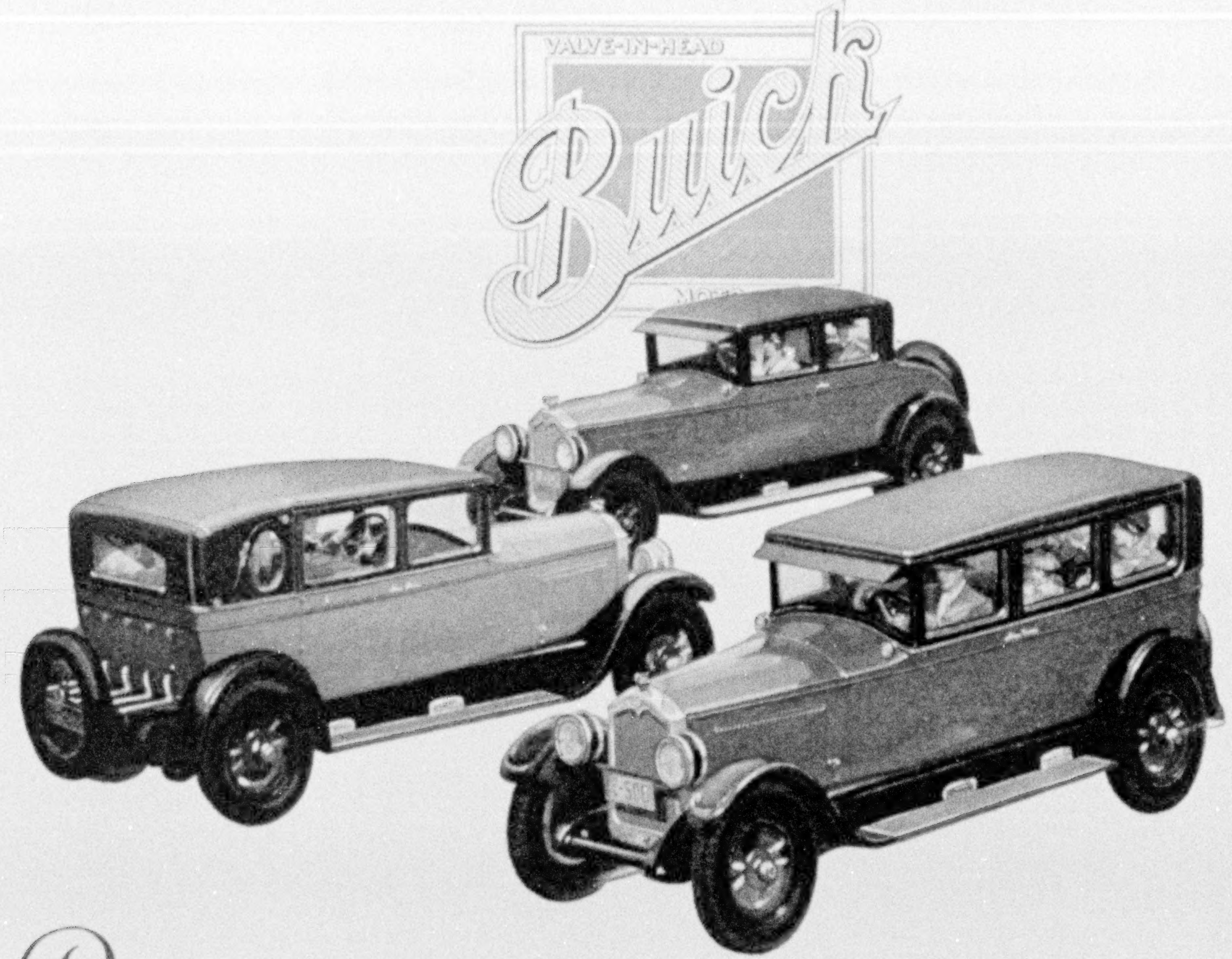

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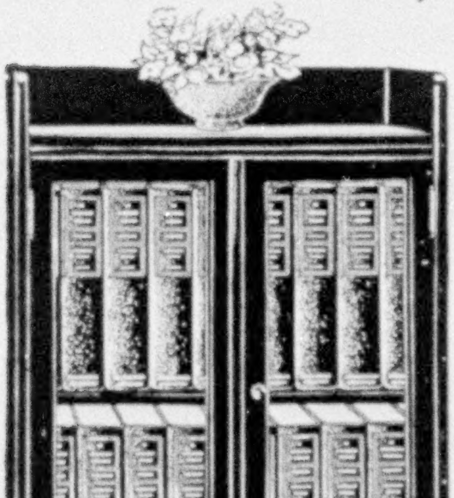

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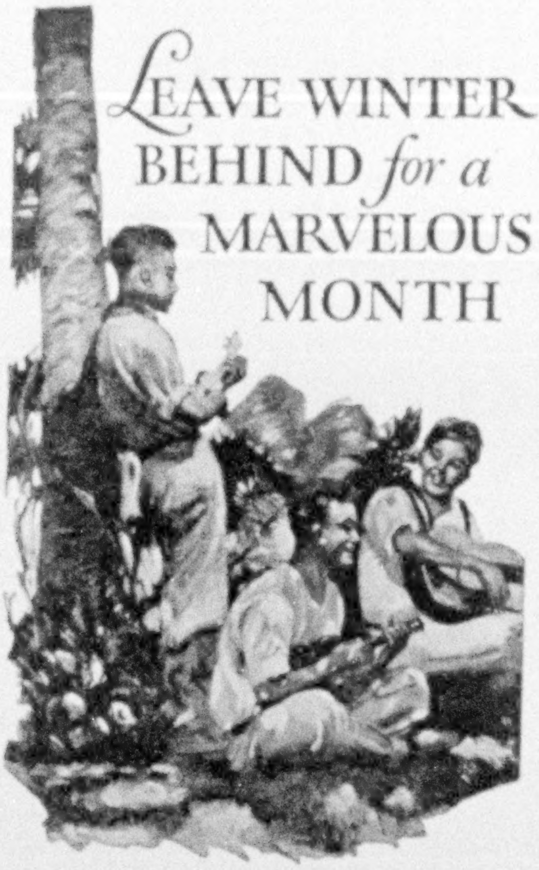

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How The Outstanding Book Is Chosen Each Month

This is a reply to a criticism sometimes advanced against the "Book-of-the-Month Club" idea. The Book-of-the-Month Club has engaged a group of five critics to select the most readable and important book each month—Henry Seidel Canby, Chairman, Heywood Broun, Christopher Morley, Dorothy Canfield, and William Allen White. The book selected each month is sent to all subscribers, who pay the same price (no more) that the publisher himself charges. Many thousands of intelligent readers have now subscribed to this service. It has, however, met with an interesting criticism. It is: "I don't want any one to select what books I shall read. I want to choose my own books." What force is there in this objection?

HAVE you ever given thought to the considerations that *now* move you in deciding to read any book? You hear it praised by a friend. Or you see an advertisement of it in a newspaper. Or you read a review of it by some critic, whose account of it excites your interest. You decide you *must* read that book. Note, however, what has happened: it is always recommendation, *from some source*, that determines you to read it. True, your choice is completely free, but you exercise your choice among recommended books.

Observe what follows, after you are thus influenced, quite legitimately, to read a certain book. Sometimes—but sometimes only—you go right out, buy it and read it. More often, however, if you are the average person your fine intention goes to seed. In the end—all too frequently—you miss reading it altogether; you confess sadly to someone that you "never got around to it."

Now, what would be the difference, were you a Book-of-the-Month Club subscriber? Strange to say, upon analysis, you will find that in practice *you would be enabled to exercise a greater liberty of choice* and above all you would actually *get* the books—without fail—that you decide to read. How?

How the "Book-of-the-Month" is Chosen

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What is the effect of this method of independent voting? You will readily admit that a book so chosen is *likely* to be one well worth reading. Certainly, it will have as strong a recommendation behind it as behind the books you are influenced to read through other sources. The chances are all in favor of its being a book *that you would not care to miss reading.*

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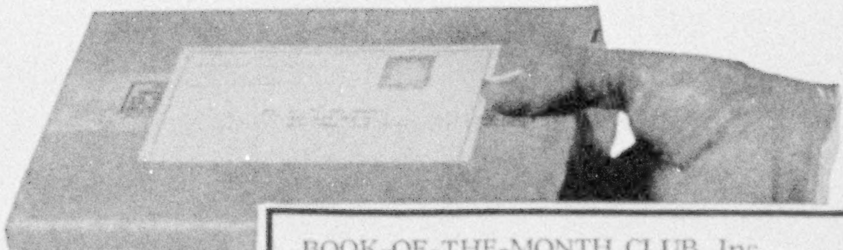

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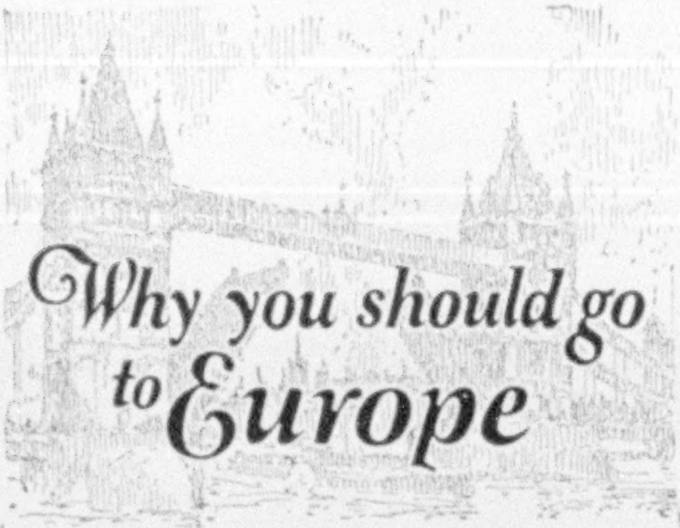

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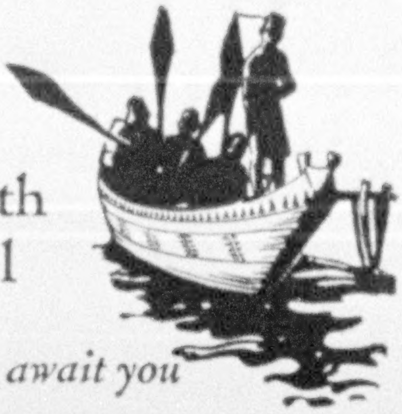

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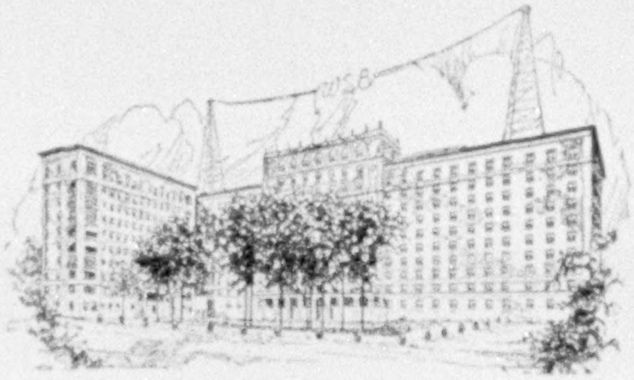

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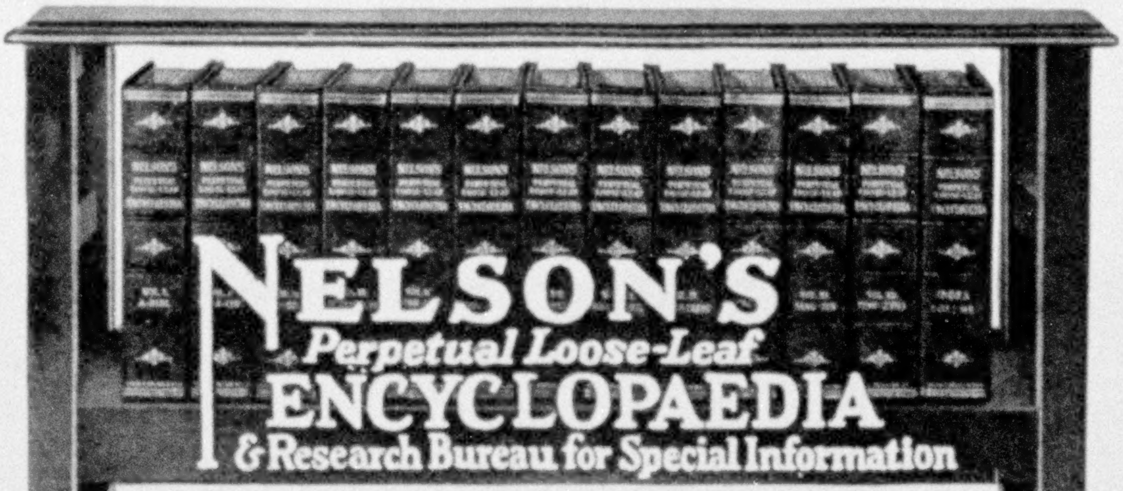

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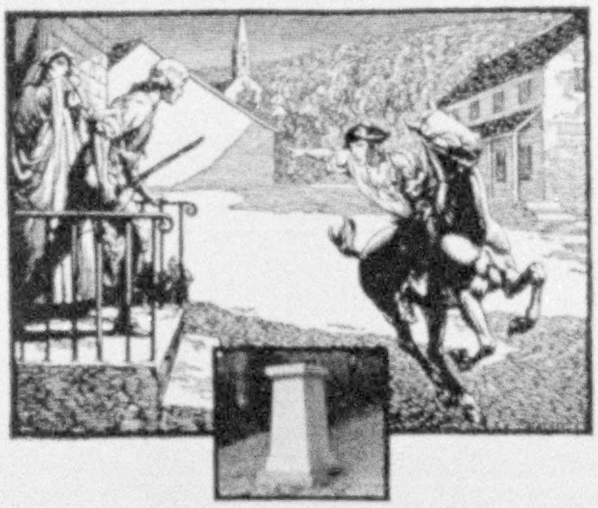

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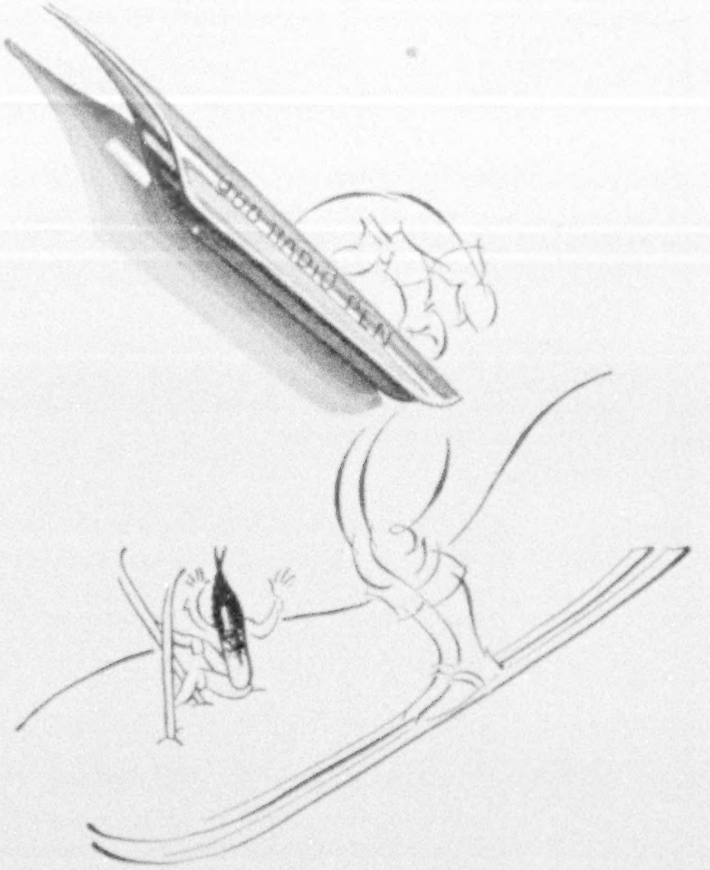

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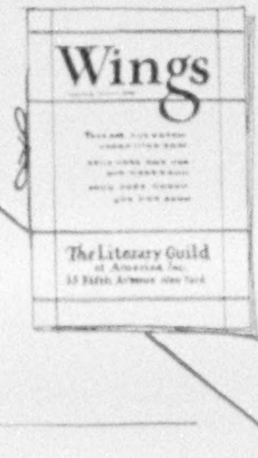

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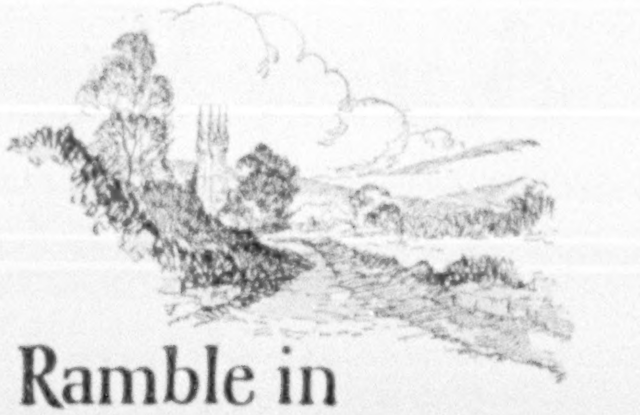

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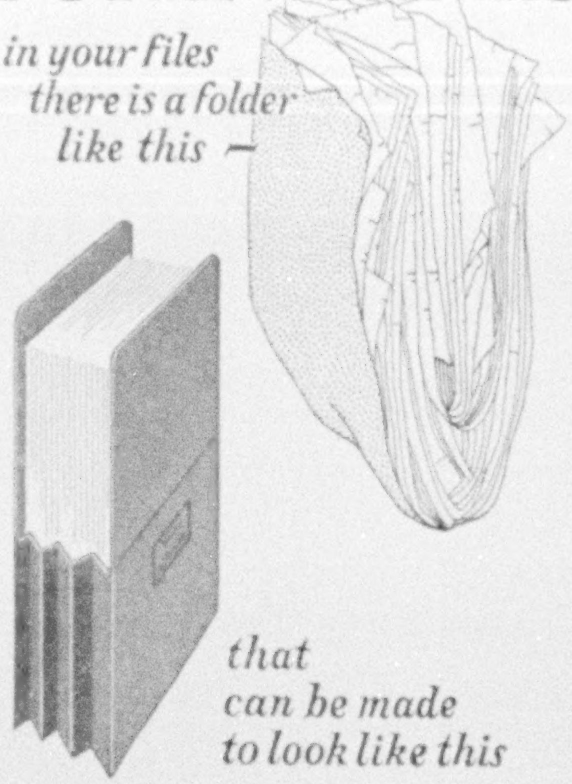

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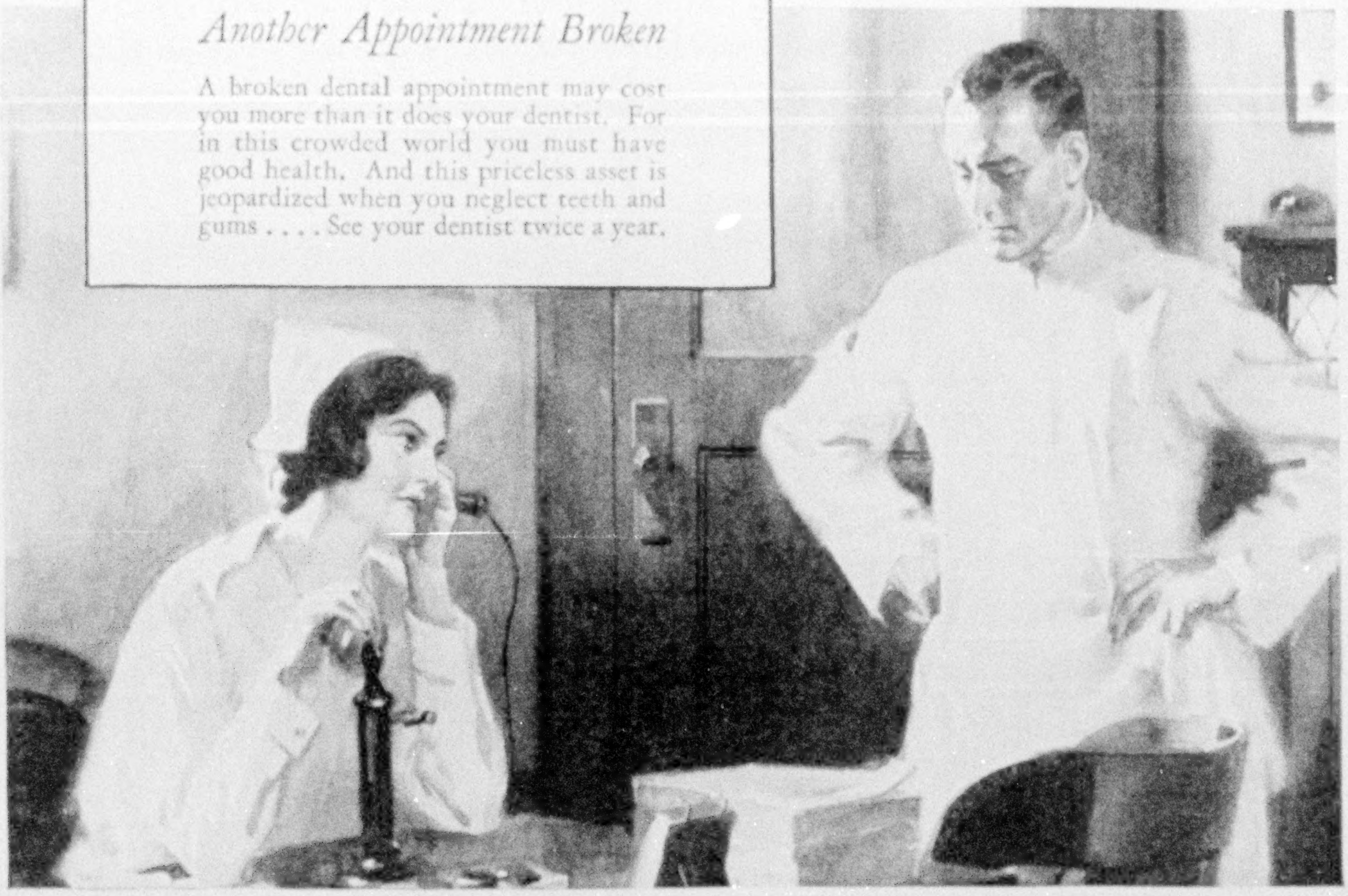

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Who shall I call?	or	**Whom** shall I call?
It's just **as** I said	or	It's just **like** I said
The river has **overflowed** its banks	or	The river has **overflown** its banks
I **would** like to go	or	I **should** like to go
I **laid** down to rest	or	I **lay** down to rest
Divide it **among** the three	or	Divide it **between** the three
The wind blows **cold**	or	The wind blows **coldly**
You will **find only** one	or	You will **only find** one

2. How do you say it—?

e-**ven**-ing	or	**eve**-ning
as-cer-**tain**	or	**as**-cer-tain
hos-pi-ta-ble	or	hos-**pit**-able
ab-do-men	or	ab-**do**-men
may-or-al-ty	or	may-**or**-al-ty
a-**me**-na-ble	or	a-**men**-able
ac-cli-mate	or	ac-**cli**-mate
pro-**found**	or	**pro**-found
ben-e-fi-**shee**-ary	or	ben-e-**fish**-ary
cul-i-na-ry	or	**cu**-li-na-ry

3. Do you spell it—?

supercede	or	supersede	repetition	or	repitition
receive	or	recieve	separate	or	seperate
repreive	or	reprieve	acomodate	or	accommodate
donkey**s**	or	donk**ies**	trafficing	or	trafficking
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ANSWERS

1.
Between you and me
I have done it already
Whom shall I call?
It's just as I said
The river has overflowed its banks
I should like to go
I lay down to rest
Divide it among the three
The wind blows cold
You will find only one

2.
eve-ning
as-cer-**tain**
hos-pi-ta-ble
ab-**do**-men
may-or-al-ty
a-**me**-na-ble
ac-**cli**-mate
pro-**found**
ben-e-**fish**-ary
cu-li-na-ry

3.
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receive separate
reprieve accommodate
donkeys trafficking
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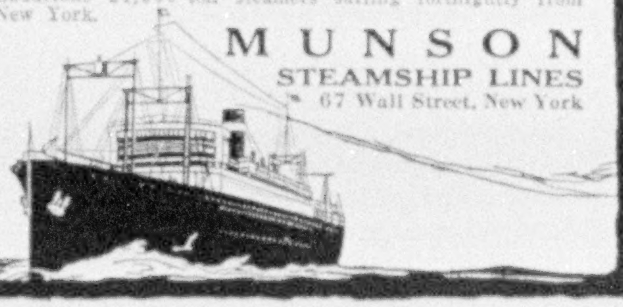

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"The Orthophonic Victrola captures the very soul of the violin."
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Put a Kreisler record on the Orthophonic Victrola. Instantly you are in the presence of this master of the bow. The precision that is Kreisler . . . the superb technique . . . the warm, lyric tone that distinguishes this Victor artist . . . these are relayed to you with flawless realism through this amazing new invention.

Tones of correct volume. Neither too soft nor too loud . . . but full, round, mellow, *natural!* Tones that are restful to the senses, as indirect lighting is restful to the eyes. A distinct Victor achievement, through the scientific, Victor-controlled principle of "matched impedance." The Orthophonic Victrola is always ready to entertain you and your friends with music of your own choosing—a violin solo, an operatic gem, lively dance music, stirring band music, a song of yesteryear or one of the catchy tunes of the day. Whatever you prefer . . . whenever you say. This entertainer knows no limitations!

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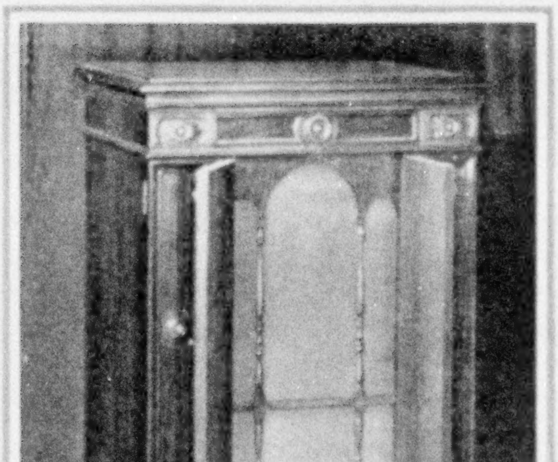

The Orthophonic Victrola furnishes the finest music for the home. The Credenza (above) is $300

The New Orthophonic

Victrola

Victor Talking Machine Co. Camden, N. J. U. S. A.

XUM

The Layerbilt patented construction revealed. Each layer is an electrical cell, making automatic contact with its neighbors, and filling all available space inside the battery case.

Eveready Layerbilt "B" Battery No. 486, the Heavy-Duty battery that should be specified for all loud-speaker sets.

This is the Heavy-Duty Battery in which the new Layerbilt construction provides greater economy

THERE'S an important discovery in radio economy awaiting all users of loud-speaker sets who have been buying the smaller Light-Duty "B" batteries instead of the large Heavy-Duty size required by such sets. Because the Light-Duties cost somewhat less to buy they seem like an economy, but the surprising fact is that the Eveready Layerbilt No. 486 lasts more than twice as long though it does not cost anywhere near twice as much. It is, therefore, much more economical—we believe it to be the most economical "B" battery ever built.

Eveready Layerbilt's remarkable life is due to its unique construction. All other dry cell "B" batteries are assembled of cylindrical cells, with much waste space between them, and many soldered connections bridging the gaps.

The Eveready Layerbilt, however, is built in layers of flat current-producing elements, making automatic connection with each other. Every available inch inside the battery is occupied usefully. You get more battery for your money, and that battery is more efficient.

Remember this about "B" batteries: All loud-speaker sets require Heavy-Duty batteries, and the Eveready Layerbilt has proved time and again to be the longest lasting and most economical Heavy-Duty "B" battery.

Manufactured and guaranteed by
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Tuesday night is Eveready Hour Night—9 P. M., Eastern Standard Time, through the following stations:

WEAF—*New York*	WTAM—*Cleveland*
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"Broke"—but Worth $79,100.00

DAD earns $50 a week. He has just paid the rent, the grocery bill and the milk bill. He says he is "broke but happy". He has his wife, his children and his comfortable little home. He feels far from rich, but in reality he and his family are worth a small fortune.

Because they have good health, this typical American family represents $79,100 of the nation's wealth.

© 1927 M. L. I. Co.

As a useful American, Dad, at 30, can figure himself as actually worth $31,000 today—for that is the present value of his future earnings less his personal expenses. Dad is one of thousands who are earning $50 a week—an average Dad. If Dad is frequently sick or if he dies young, he will be worth less than $31,000. With-better-than-average health and longer life, he should be worth a great deal more.

Mother's contribution to the family wealth—her time and energy, love and devotion—can never be measured in money. But at a very conservative estimate, the money value of her services must be at least half that of Dad's—$15,500.

That rosy-cheeked, four-months-old baby boy is worth $9,500 this minute, while big Brother, seven, and little Sister, five, are worth $16,000 and $7,100 each as future productive citizens.

But their fortunes are locked up in their own bodies. They will reach the full measure of their wealth only by keeping healthy and fit for their daily work—otherwise their fortunes will shrink. Let Dad—every dad from coast to coast—learn how to use the great discoveries of modern medical science to prevent disease and prolong the lives of his children, his wife and himself.

And if he thinks that he is "broke", let him find out what he really is worth in dollars and cents to himself, to his family, and to his country.

Contrasted with the total material wealth of the country in 1922—railroads, buildings, land, mines, etc.—which amounted to 321 billion dollars, the economic value of the lives of the entire population was 1500 billions. More than six billion dollars were lost last year because of needless deaths.

With these tremendous values in mind the importance of health and welfare work becomes apparent.

Seventeen years ago the Metropolitan Life Insurance Company instituted a health and nursing service for policyholders.

More than 20 millions of dollars were expended. During this period, the mortality rate of policyholders declined more than 30 per cent and the accumulated saving has totalled the amazing sum of 43 millions of dollars.

The Metropolitan will gladly mail, free, its booklet, "The Value of Human Life at all Ages". It tells what you are worth, also the potential worth of each member of your family. Send for it.

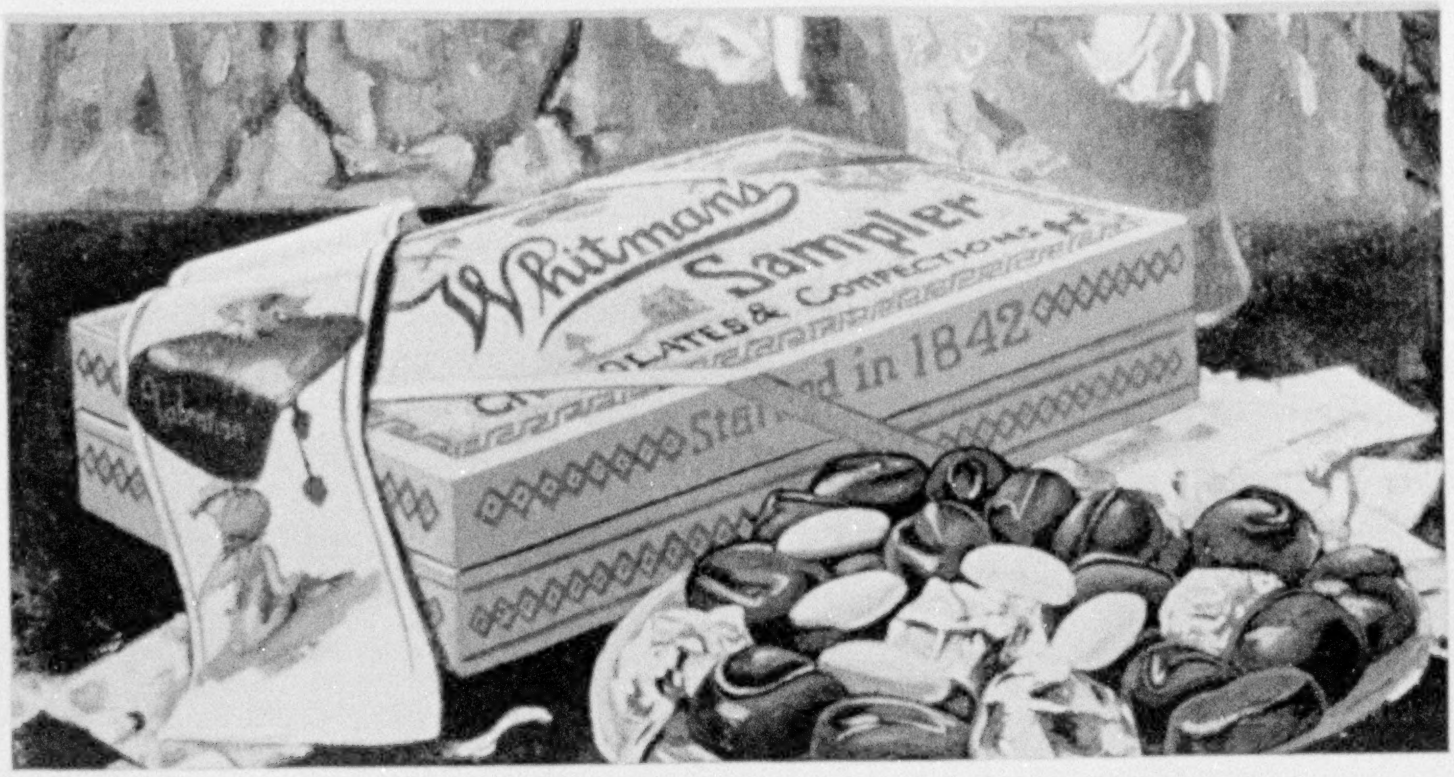
HALEY FISKE, *President.*

Published by

METROPOLITAN LIFE INSURANCE COMPANY—NEW YORK

Biggest in the World, More Assets, More Policyholders, More Insurance in force, More new Insurance each year

The Sampler
– a favored Valentine token

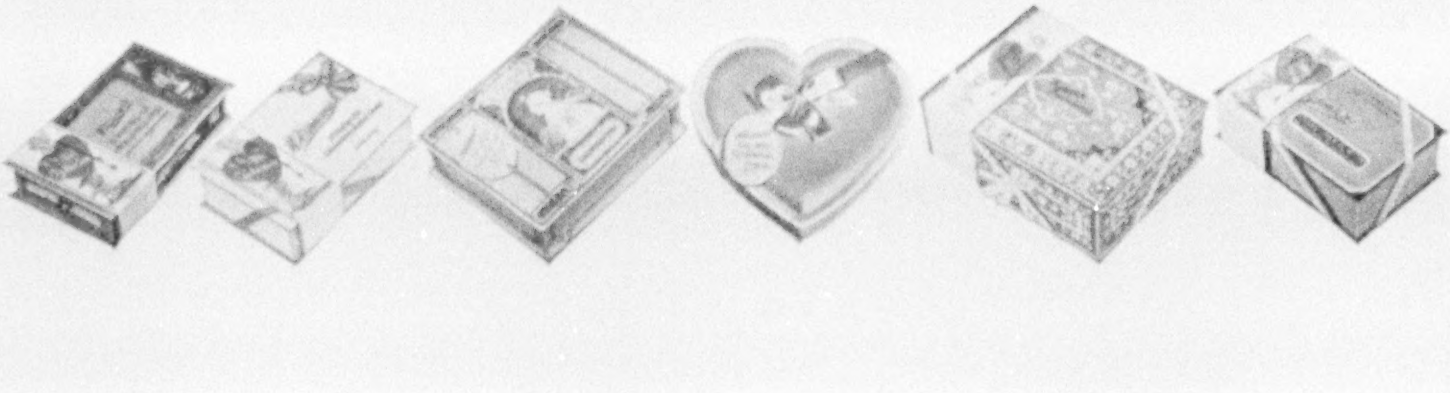


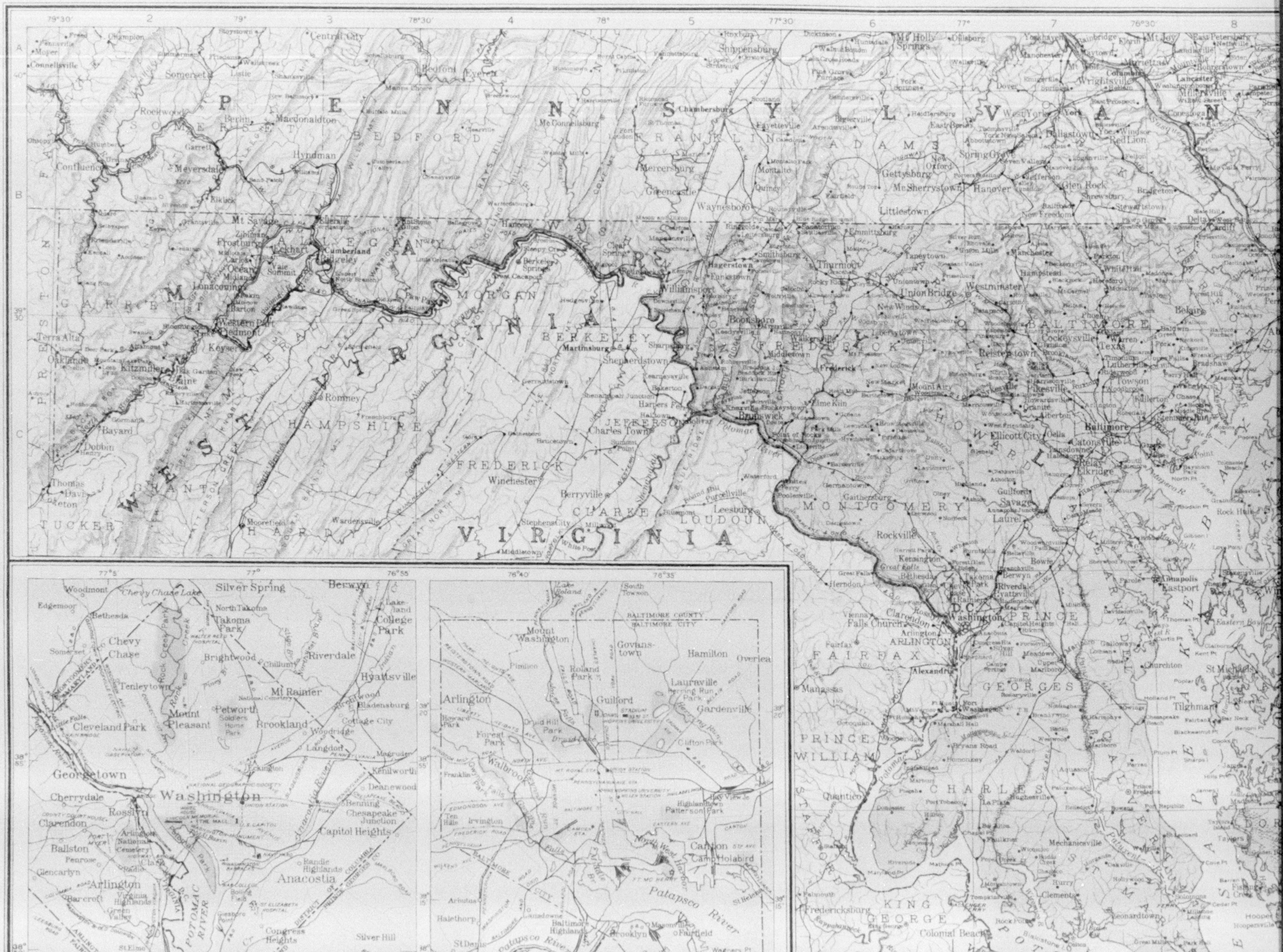
Do you want her to know who sent the Valentine? You don't—*and you do,* especially if it's Whitman's Sampler. There's an air of unusualness about this famous box of sweets that you'll be proud to have her associate with your name. How she will enjoy the delicious chocolates and confections, the selections of the most critical candy tastes in America! Give the Sampler and you give a thrill.

A glance at the mysteriously written address. An air of suspense as the package is opened. Then a real thrill of pleasure when she finds it's a box of

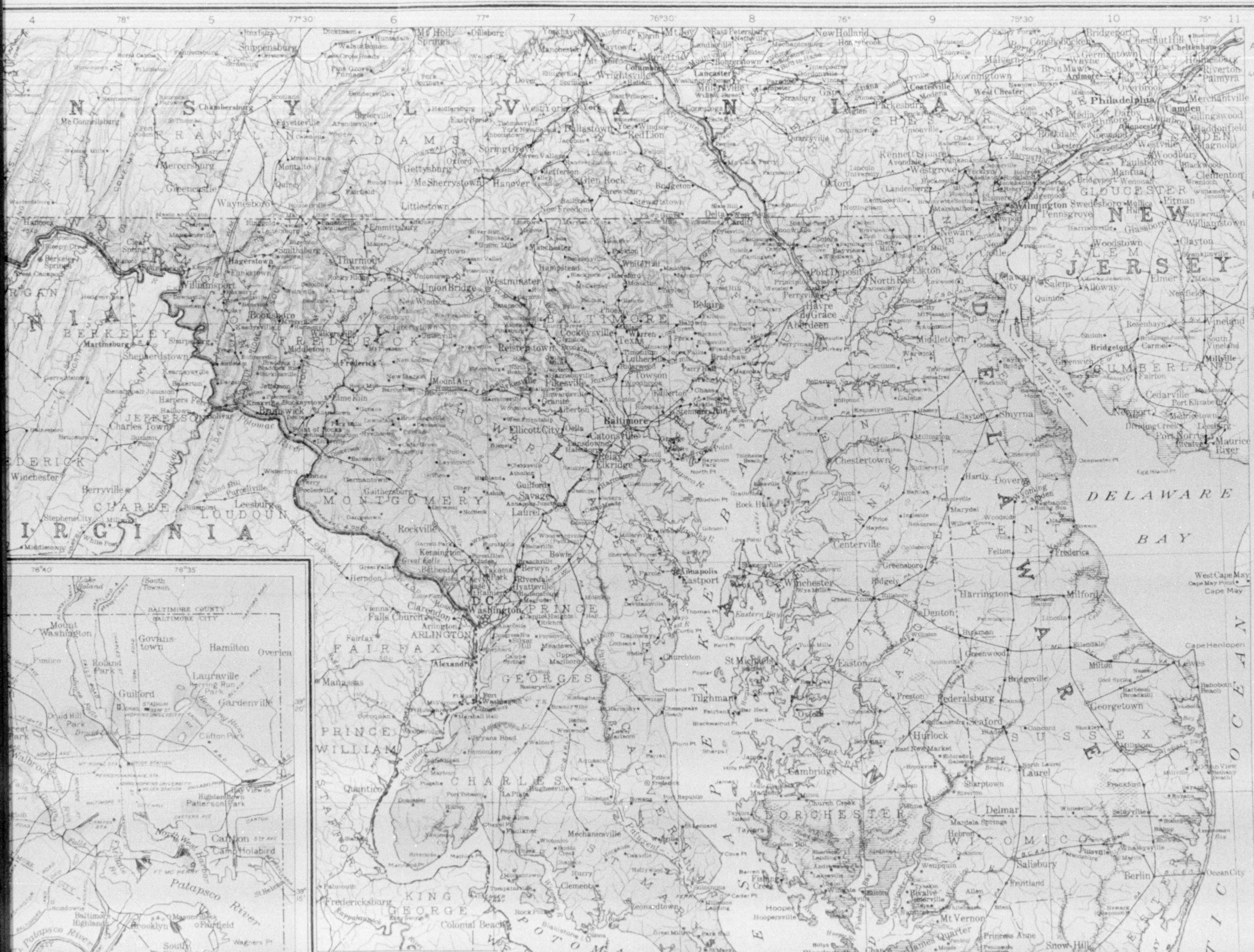
Whitman's
Chocolates

Suit the Valentine to the individual taste. Each of the celebrated Whitman packages has its own "personality" and its own admirers. The Sampler, A Fussy Package, Salmagundi, Cloisonné, Bonnybrook Milk Chocolates, The Heart Box. Selection is easy from these beautiful boxes, with their special Valentine bands and the charming variety of their assortments. Every box sent direct from us to our agents in your neighborhood.





PENNSYLVANIA
WEST VIRGINIA
VIRGINIA
SOMERSET
BEDFORD
FRANKLIN
ADAMS
ALLEGANY
GARRETT
MORGAN
BERKELEY
JEFFERSON
HAMPSHIRE
FREDERICK
CLARKE
LOUDOUN
HARDY
TUCKER
MONTGOMERY
BALTIMORE
HOWARD
CARROLL
FAIRFAX
ARLINGTON
PRINCE GEORGES
PRINCE WILLIAM
CHARLES
STAFFORD
KING GEORGE
ST MARYS
CALVERT
ANNE ARUNDEL
Chambersburg
Gettysburg
Hanover
York
Cumberland
Frostburg
Hagerstown
Williamsport
Martinsburg
Shepherdstown
Charles Town
Harpers Ferry
Brunswick
Frederick
Westminster
Winchester
Berryville
Leesburg
Rockville
Gaithersburg
Laurel
Baltimore
Ellicott City
Annapolis
Washington
Alexandria
Falls Church
Manassas
Fredericksburg
Silver Spring
Takoma Park
Chevy Chase
Georgetown
Anacostia
Brookland
Cleveland Park
Mount Pleasant
Petworth
Arlington
Rosslyn
Clarendon
Capitol Heights
Hyattsville
Riverdale
Mt Rainier
Mount Washington
Roland Park
Govans-town
Hamilton
Guilford
Druid Hill Park
Walbrook
Forest Park
Canton
Camp Holabird
Patapsco River
Irvington
Brooklyn
POTOMAC RIVER



PENNSYLVANIA
FRANKLIN
ADAMS
YORK
LANCASTER
CHESTER
DELAWARE
NEW JERSEY
SALEM
GLOUCESTER
CAMDEN
CUMBERLAND
WASHINGTON
FREDERICK
CARROLL
BALTIMORE
HARFORD
CECIL
KENT
QUEEN ANNES
TALBOT
CAROLINE
DORCHESTER
WICOMICO
SUSSEX
HOWARD
MONTGOMERY
ANNE ARUNDEL
PRINCE GEORGES
CALVERT
CHARLES
ST MARYS
BERKELEY
JEFFERSON
CLARKE
LOUDOUN
FAIRFAX
ARLINGTON
PRINCE WILLIAM
STAFFORD
KING GEORGE
VIRGINIA
DELAWARE BAY
DELAWARE RIVER
CHESAPEAKE BAY
POTOMAC
ATLANTIC OCEAN
Chambersburg
Shippensburg
Gettysburg
Hanover
York
Lancaster
Columbia
Wrightsville
Coatesville
West Chester
Downingtown
Philadelphia
Camden
Chester
Media
Wilmington
Newark
New Castle
Elkton
Havre de Grace
Aberdeen
Bel Air
Westminster
Hagerstown
Williamsport
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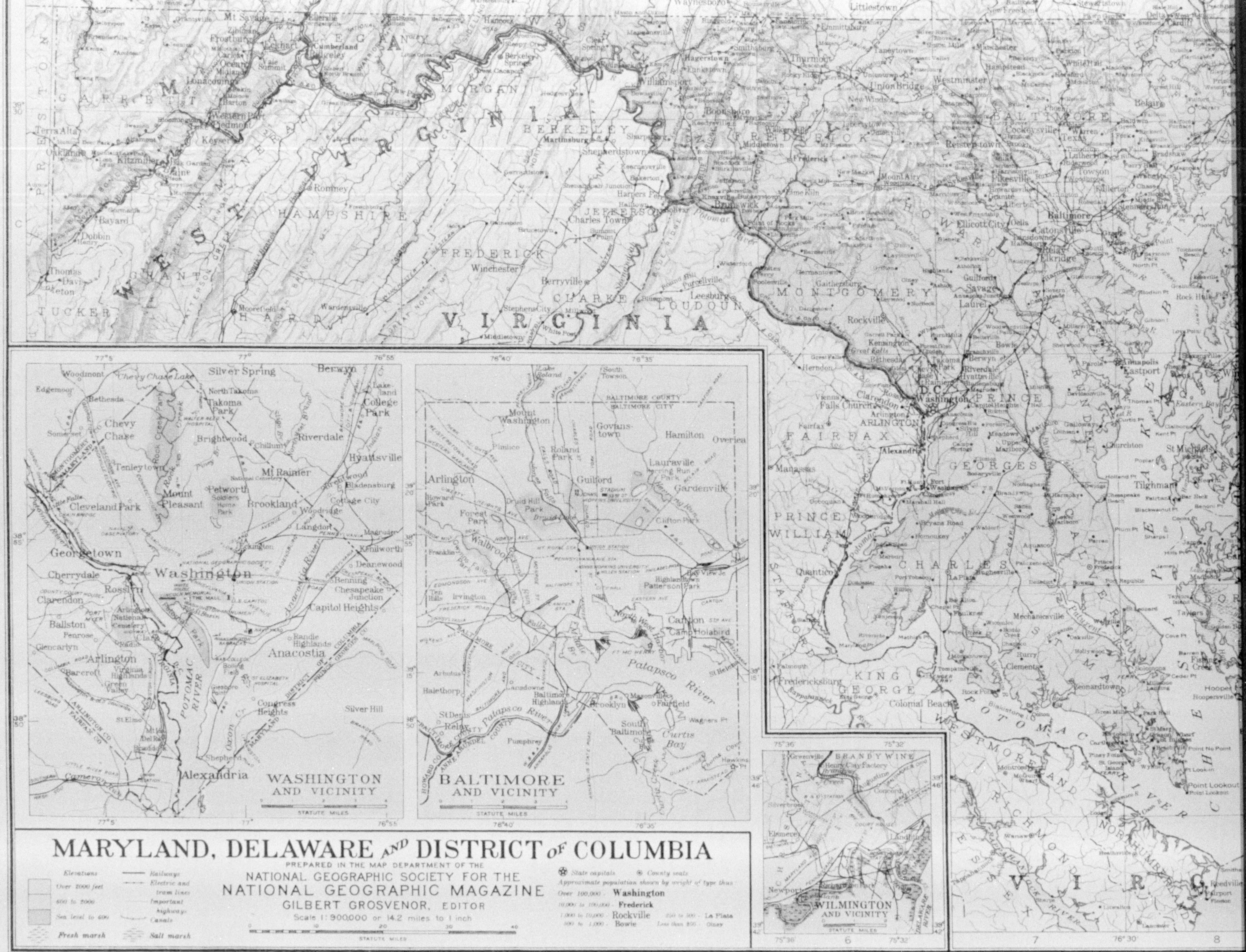
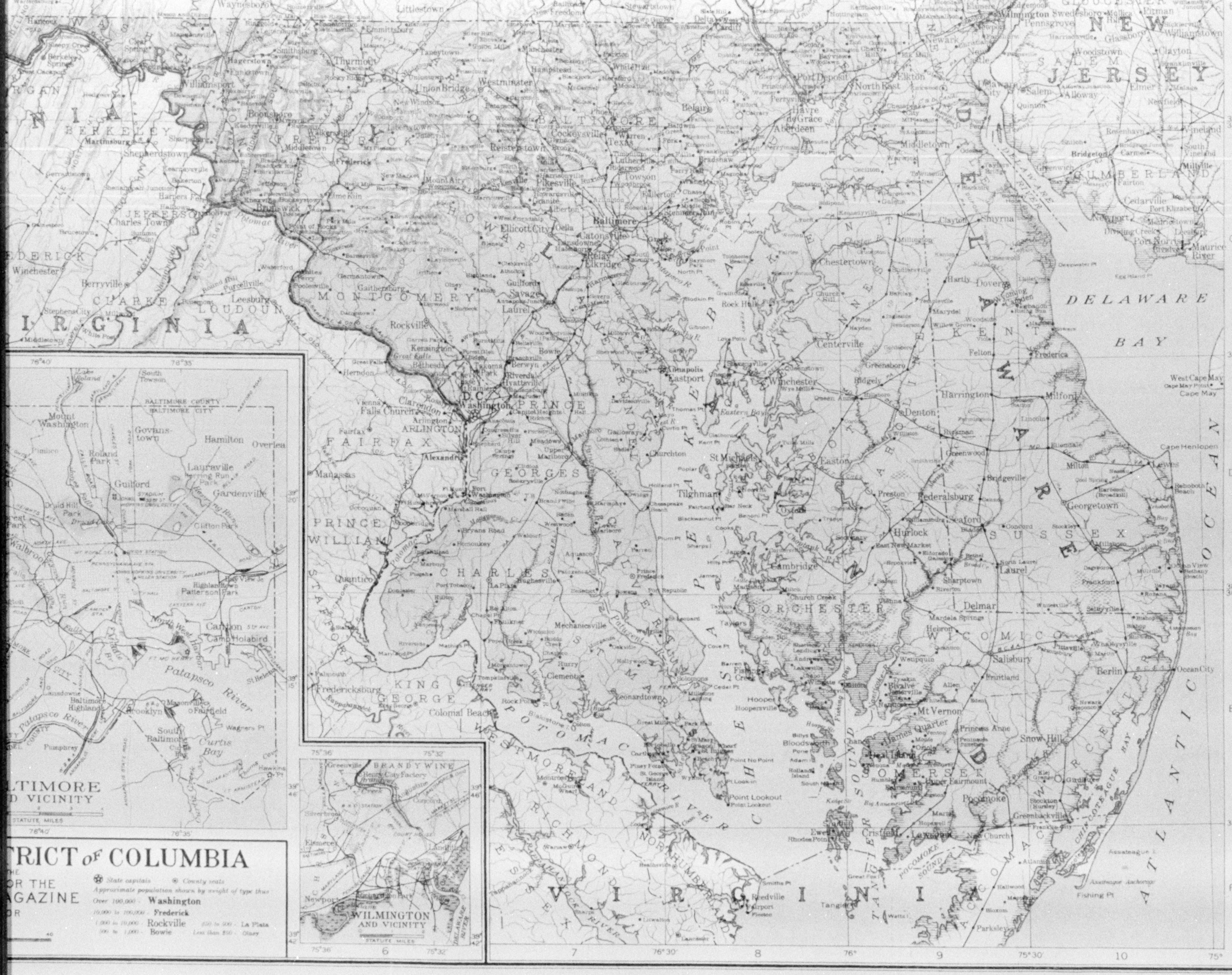
Snow Hill
Princess Anne
Dover
Smyrna
Milford
Georgetown
Lewes
Rehoboth Beach
Cape Henlopen
Cape May
West Cape May
Bridgeton
Millville
Vineland
Salem
Woodbury
76°40′
76°35′
Mount Washington
Govanstown
Hamilton
Roland Park
Lauraville
Guilford
Gardenville
Clifton Park
Patterson Park
Canton
Camp Holabird
Patapsco River
Brooklyn
Fairfield
BALTIMORE COUNTY
BALTIMORE CITY


MARYLAND, DELAWARE AND DISTRICT of COLUMBIA
PREPARED IN THE MAP DEPARTMENT OF THE
NATIONAL GEOGRAPHIC SOCIETY FOR THE
NATIONAL GEOGRAPHIC MAGAZINE
GILBERT GROSVENOR, EDITOR
Scale 1:900,000 or 14.2 miles to 1 inch
STATUTE MILES
Elevations
Over 2000 feet
600 to 2000
Sea level to 600
Fresh marsh
Salt marsh
Railways
Electric and tram lines
Important highways
Canals
State capitals
County seats
Approximate population shown by weight of type thus:
Over 100,000 - Washington
10,000 to 100,000 - Frederick
1,000 to 10,000 - Rockville
500 to 1,000 - Bowie
250 to 500 - La Plata
Less than 250 - Olney
WASHINGTON AND VICINITY
BALTIMORE AND VICINITY
WILMINGTON AND VICINITY
WEST VIRGINIA
VIRGINIA
GARRETT
ALLEGANY
WASHINGTON
FREDERICK
CARROLL
BALTIMORE
HOWARD
MONTGOMERY
PRINCE GEORGES
ANNE ARUNDEL
CALVERT
CHARLES
ST MARYS
MORGAN
BERKELEY
JEFFERSON
HAMPSHIRE
MINERAL
GRANT
HARDY
TUCKER
PRESTON
FREDERICK
CLARKE
LOUDOUN
FAIRFAX
ARLINGTON
PRINCE WILLIAM
STAFFORD
KING GEORGE
WESTMORELAND
RICHMOND
NORTHUMBERLAND
ESSEX
POTOMAC RIVER
CHESAPEAKE BAY
Washington
Baltimore
Annapolis
Alexandria
Hagerstown
Cumberland
Frederick
Rockville
Winchester
Martinsburg
Fredericksburg



TRICT of COLUMBIA
State capitals
County seats
Approximate population shown by weight of type thus
Over 100,000 Washington
10,000 to 100,000 Frederick
1,000 to 10,000 Rockville
250 to 500 La Plata
500 to 1,000 Bowie
Less than 250 Olney
LTIMORE
D VICINITY
STATUTE MILES
WILMINGTON
AND VICINITY
STATUTE MILES
NEW JERSEY
SALEM
GLOUCESTER
CUMBERLAND
DELAWARE
NEW CASTLE
KENT
SUSSEX
DELAWARE BAY
ATLANTIC OCEAN
CHESAPEAKE BAY
BALTIMORE
FREDERICK
HOWARD
MONTGOMERY
PRINCE GEORGES
ANNE ARUNDEL
CHARLES
CALVERT
ST MARYS
KENT
QUEEN ANNES
TALBOT
CAROLINE
DORCHESTER
WICOMICO
SOMERSET
WORCESTER
VIRGINIA
BERKELEY
JEFFERSON
CLARKE
LOUDOUN
FAIRFAX
ARLINGTON
PRINCE WILLIAM
STAFFORD
KING GEORGE
WESTMORELAND
RICHMOND
NORTHUMBERLAND
ESSEX
ACCOMAC
POTOMAC RIVER
Washington
Baltimore
Annapolis
Dover
Wilmington
Frederick
Hagerstown
Alexandria
Rockville
Salisbury
Cambridge
Easton

XUM

Vol. LI, No. 2 WASHINGTON February, 1927

THE NATIONAL GEOGRAPHIC MAGAZINE

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A MARYLAND PILGRIMAGE

Visits to Hallowed Shrines Recall the Major Rôle Played by This Prosperous State in the Development of Popular Government in America

By Gilbert Grosvenor, LL. D., Litt. D.

President National Geographic Society

Author of "The Hawaiian Islands," "The Land of the Best," "Peary's Polar Explorations in the Far North," "Young Russia," "The Capitol—Wonder Building of the World," etc., in the National Geographic Magazine

The visitor to Maryland, motoring over the thousands of miles of her splendid highways, soon discovers that the Old Line State is a delightful geographic miniature of America.

Her Eastern Shore is as level as any prairie State and, under modern cultivation, becomes as fertile. Southern Maryland, romantic with manorial mansions that are centuries old, is a counterpart of tidewater Virginia and the old South.

The rolling green fields and forested hills of Montgomery and Frederick counties remind one of the Blue Grass country of Kentucky and of the loveliest valleys of New York and New England, while the long climbs of Big Savage Mountain, Negro Mountain, and Keysers Ridge have made many a Western motorist feel that they were as high as the Rockies and the Sierra Nevada (see Special Map Supplement with this number).

Her tiny area is a museum of geology, disclosing the most ancient rocks of our globe and others still in the process of making, and running the scale through every major geological epoch.

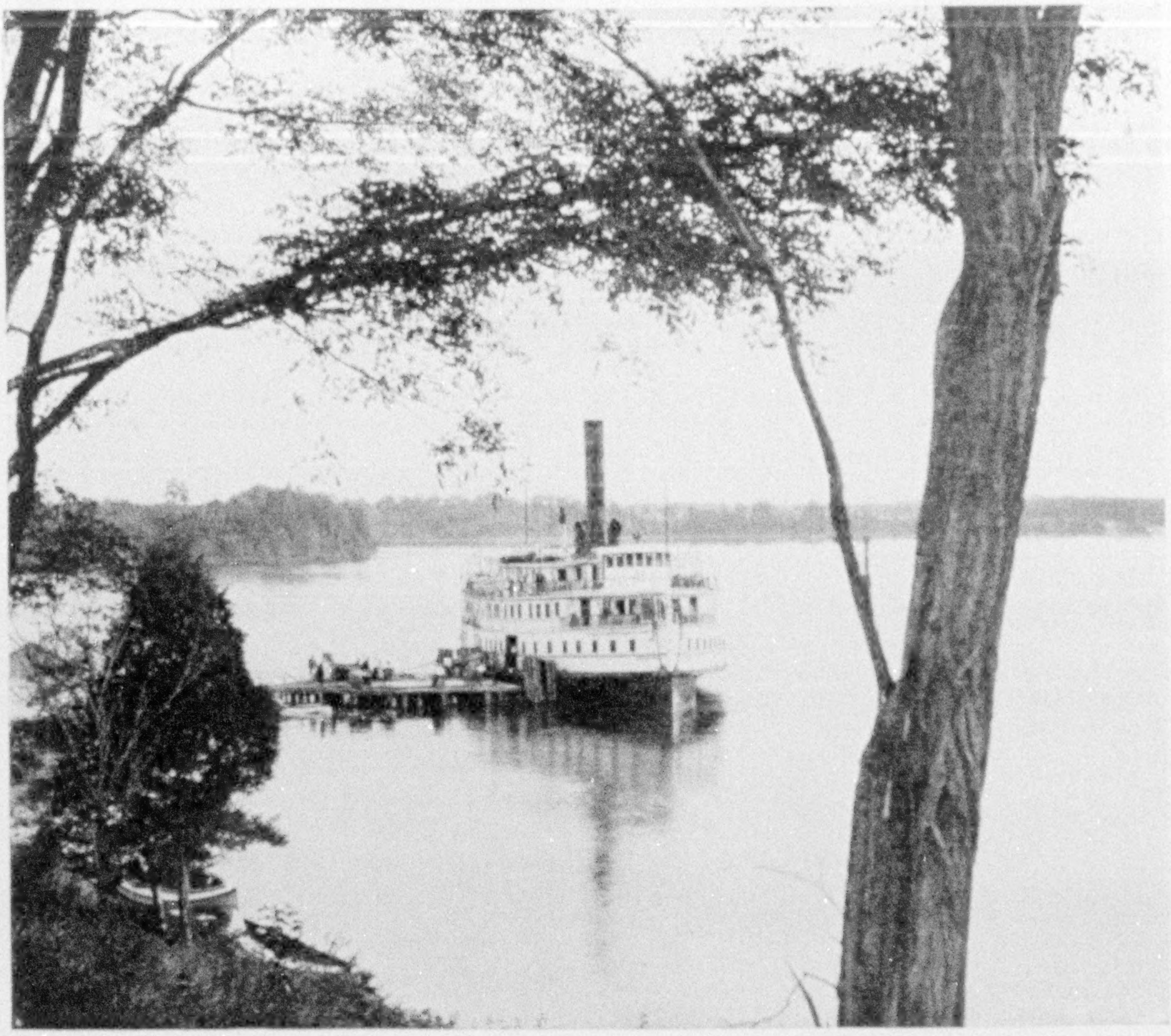
From little St. Marys, where the colonists of the *Ark* and the *Dove* established the first community in the world where Protestant and Catholic could worship in friendship together, in an age when Europe was red with blood shed in the name of religion, to the mountains of Western Maryland, where George Washington, fighting the Indians, gained his first military experience, a continuous panorama unfolds of colonial landmarks and scenes sacred and momentous in our national life.

In this State, whose finest tradition is tolerance, intellectual giants and big-souled men and women originated notable principles of government and new ideals of human society.

MOST LIBERAL CHARTER EVER GRANTED BY AN ENGLISH SOVEREIGN

It is impossible definitely to fix the date when white men first saw what is now Maryland.

But certainly the Chesapeake Bay region was carefully explored by Captain John Smith, of Jamestown, in 1608. In that year he went up one side of the bay and down the other, going up the rivers and inlets as he pushed onward. He visited what is now the site of Baltimore and



Photograph by Edwin L. Wisherd

ST. MARYS RIVER, WHERE THE MARYLAND COLONISTS DISEMBARKED

The high bluffs of a beautiful river, which he named St. Marys, was the site chosen by Leonard Calvert for the first settlement. Here he found a long-established Indian village set in the midst of fertile fields, already cultivated and ready for the plow. By singular good fortune the Indians had made plans to migrate, and were delighted to sell their lands to Calvert for a quantity of axes, hoes, and broadcloth (see, also, text, page 141).

sailed up the Patapsco River. He also went up the Potomac as far, at least, as Indian Head.

After the rigors of the Newfoundland climate had ended his hopes of establishing a colony there, and after Virginia had refused to receive him unless he took the oath of spiritual allegiance to the King of England, Sir George Calvert, the first Lord Baltimore, went back to London and asked the king for a part of the unsettled region north of the Potomac River.

This was granted him, and also a charter (which he wrote himself) that entitled him to set up a palatinate, with the most ample rights and privileges ever conferred by a sovereign of England.

Under it, all that the Crown retained was feudal supremacy. Two Indian arrows and a fifth of the gold and silver produced were the sole annual tribute required as a gesture of fealty to the king. Beyond that, the Proprietor was given sovereign powers and the colonists were to retain all the rights of Englishmen.

SAILING INTO COLONIAL SCENES

Impressed by the crescent form of the southern boundary of the territory granted him by his friend Charles I, Lord Baltimore decided to call it Crescentia. The king, however, wanted to honor his wife, Queen Henrietta Maria, and Maryland the colony became.

Photograph by Edwin L. Wisherd

A PLACE FOR PILGRIMAGE—ST. MARYS CITY

The tall monument stands on the site of the old mulberry tree under which Leonard Calvert signed the treaty by which he bought 30 miles from the Indian king in 1634. The square stones mark the corners of the first statehouse of Maryland. By automobile St. Marys City is 80 miles from Washington, over good roads.

The first Lord Baltimore dying before he could take advantage of his grant, the title was confirmed to his son Cecil.

Maryland had its beginnings between the Potomac River and Chesapeake Bay, and the events that transpired in that peninsula have had such a vital bearing on the destiny of the United States and the course of human history that one needs to journey hither who would understand the rôle of this fine old State in the making of America.

To resurrect the colonial scene and to absorb its atmosphere to best advantage, one should leave his motor car behind and wander down the Potomac and up the Chesapeake aboard one of the little trading steamers which wend their way to all the sturdy landings that reach out of the colonial past for their not-too-frequent contacts with the twentieth-century world.

For while modern Maryland, for the most part, turns its back on the Bay and its tributaries and faces the splendid highways of the present, which have had to keep inland to avoid broad, unbridgeable tidal inlets, historic Maryland gratefully faced the shore that was its great highway to the world beyond the sea and clung close to it.

Forty miles in forty hours—from Washington to Baltimore between Satur-

Photograph by Edwin L. Wisherd

ROLLING A HOGSHEAD OF TOBACCO DOWN TO THE LEONARDTOWN WHARF FOR SHIPMENT TO BALTIMORE

Leonardtown is the county seat of St. Marys County. The tobacco is rolled down to the landings in great hogsheads to-day, just as it has been for nearly 300 years.

day afternoon and Monday morning! No, the steamer is not so unreasonably slow as it would seem; for its course must thread a dozen tidal rivers and lakelike bays to visit the creaking landings that have survived the centuries and still offer their commerce to the outside world. During those forty hours one lives again the life of another age and is in touch with a by-gone social system.

WHERE THE PAST COMES BACK

"Again," in the inimitable words of Wilstach, "the vivid features of the early days assert themselves; the canoes of the Indians dart along the river; the shallops of John Smith and other adventurers sail its course; the pinnaces of Lord Baltimore search its shores and find a haven; the square-rigged ships from England bring luxuries and dainties to the planters and their dames; the landings creak and bend or straighten and steady under the tobacco cargoes; the plantations renew the life of plenty and ease and splendor; the big-wigged cavaliers and the brocaded ladies people the lofty porticoes and broad halls of stately mansions; the candles twinkle and the fiddles scrape the measures of the minuet and reel; the foxes fly before the pink-coated hunting squires; the coachman's whip cracks over leader and wheel horse, as the coaches roll off to weddings and routs." *

The Potomac in that classic day was a paradise of game and teemed with divers kinds of fishes. Captain John Smith found fish so abundant that he essayed fishing with a frying pan, but could not keep them from jumping out, and changed to spearing them with his sword!

The trip begins as we set sail, leaving the Capital City astern. Presently the frowning bastions of Fort Washington appear, at the mouth of Piscataway Creek. Upon the site of the parade ground of that fort, which the Government is now arranging to abandon and patriotic citizens are seeking to preserve as a national park, Father White, who was the Andrew

* "Potomac Landings," by Paul Wilstach, Doubleday, Page & Company.

THE FIRST TRAVELING LIBRARY IN AMERICA WAS FOUNDED AT HAGERSTOWN, MARYLAND

The Washington County Free Library at Hagerstown has the distinction of being the first county library to be operated in the country. Stations are established in the small towns in the county, supplied with books from the central library, and a "book wagon," especially planned to carry nearly a thousand volumes, makes regular trips throughout the county with a house-to-house delivery of books. It was inaugurated in 1902.

Bradford and Captain Smith of Maryland chroniclers, tells us that Governor Leonard Calvert held a powwow with the king of the Piscataways, as his first act in establishing friendly relations with the Indians.

Port Tobacco River comes down through the hills to meet us, with its memories of John Hanson, of Mulberry Grove, President of the United States in Congress Assembled, 1781-1782; of Thomas Stone, of Habre de Venture, signer of the Declaration of Independence, and of Dr. James Craik, who saved Washington's life in Braddock's defeat and attended him until his death.

WHERE "KING ENTERTAINER" LIVED

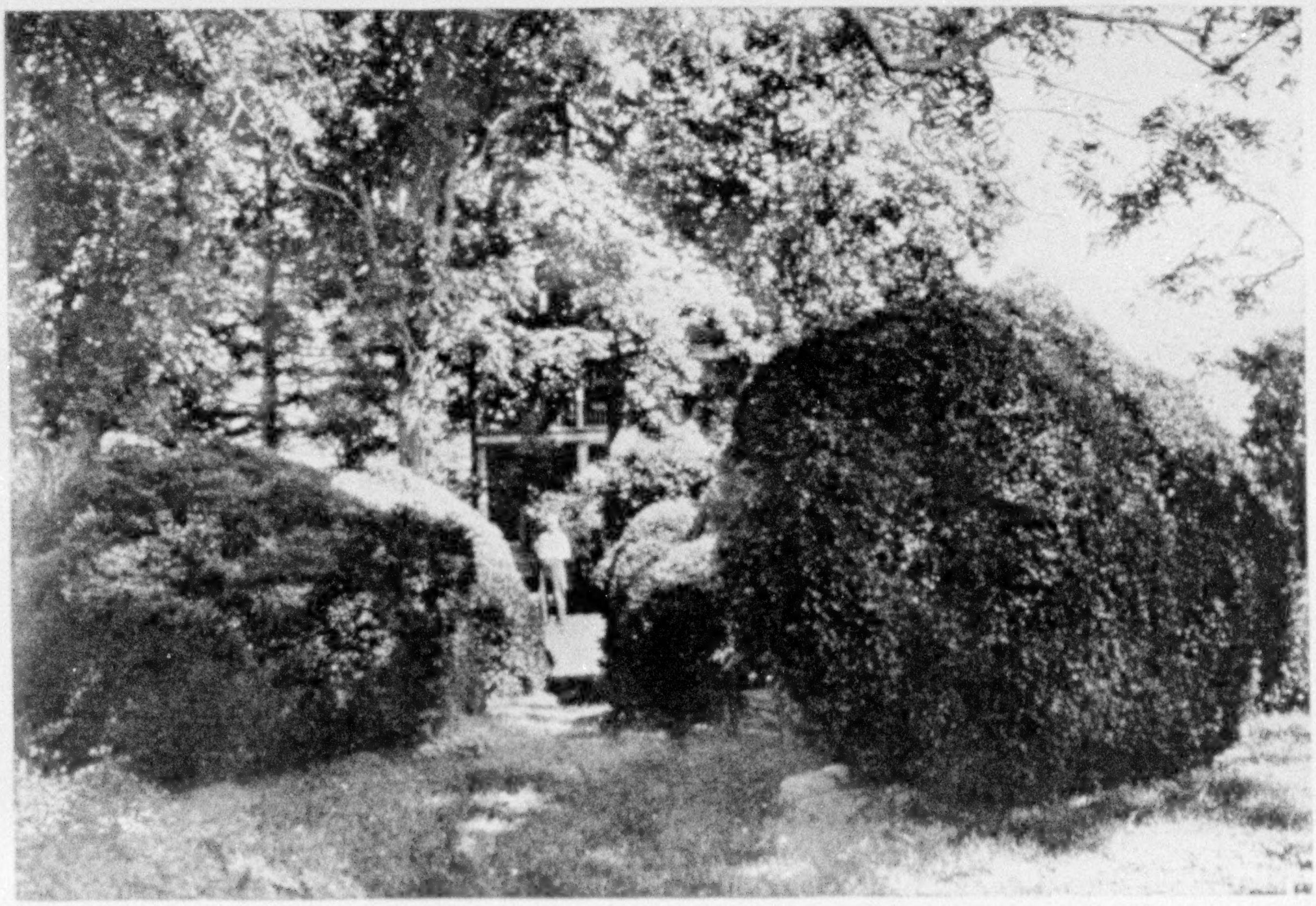
Many of the fine old manor houses survive, but the years have closed the stream to modern navigation, although it once was deep enough for the four-masted barques from England and did a thriving trade in tobacco. It got its name, not, it is said, from the sovereign weed, but from the tribe of Indians who once lived there—the Portobacks.

Just before reaching Morgantown, Mount Republican appears beyond a headland, and what memories the walls of this old house could relate if they could speak! For here lived and ruled, history notes, Franklin Weems, known as King Entertainer of Southern Maryland. It is said that he had a hundred foxhounds in his pack; that he maintained a card game which lasted forty years; that he kept a cellar stocked with fifty barrels of the best brandies and the choicest wines, for the landed gentry or casual traveler coming his way, and he so loved youth and happiness about him that he gave a party for the young people three times a week.

Hard Bargain stands on a bluff overlooking the Wicomico. Gwinn Harris and his wife, Kitty Root Harris, lived near by. When they came to celebrate their golden wedding, so the legend runs, Mr.

Photograph by Gilbert Grosvenor

CROSS MANOR, THE OLDEST HOUSE IN MARYLAND, BUILT IN 1642 BY THOMAS CORNWALEYS, DEPUTY GOVERNOR



Photograph by Edwin L. Wisherd

BOXWOOD HEDGES NEARLY 300 YEARS OLD

One of the finest features of Cross Manor, near St. Marys City, is its boxwood. The bushes were planted shortly after the first settlement on Maryland soil, and in the succeeding three centuries they have grown to treelike proportions (see, also, text, page 141).

Photograph by Edwin L. Wisherd

IN THE HARBOR, SOLOMONS ISLAND

The planters of Maryland's colonial days were not harassed with the problem of good roads, for their estates were so placed that they had deep water at their very doors, insuring direct communication with their neighbors and with England.

Harris promised his brother Tom that if he would drink a glass of wine to Kitty's health on that occasion he would buy the Diggs estate for him and build him a fine house, with bricks imported from England. Tom Harris agreed, and his brother fulfilled his promise. History is regrettably silent as to why Tom should christen his place Hard Bargain, but suspicion has never accredited the name to the quality of the wine served him.

One wishes the steamer would go up the Wicomico as far as Chaptico, for in the churchyard there sleeps a dashing pirate whose dying request was that he be buried standing up!

Late in the night Blakistone Island (known as St. Clement's Island in colonial days) is picked up by an obliging searchlight, and one can fancy he sees coming out of the darkness of the past the *Ark* and the *Dove*, bearing the founders of Maryland, commanded by Governor Leonard Calvert, brother of Sir Cecil Calvert, Second Lord Baltimore.

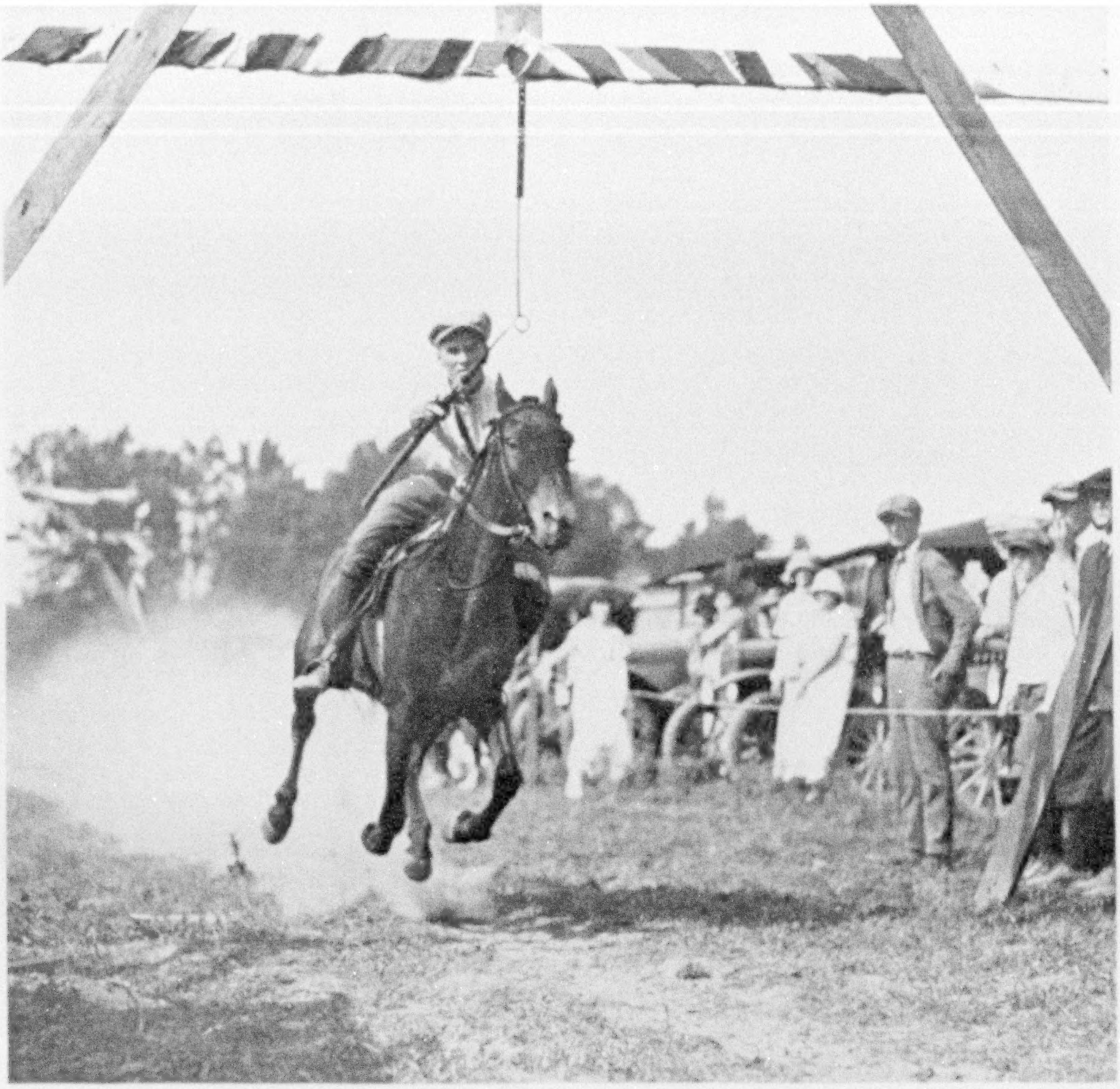
On seeing the *Ark*, the larger ship, the Indian scouts reported that the white men had come "in a canoe as big as an island, with so many men as there are trees in a wood." Whereupon every tribe of Indians lit its council fires in consternation.

Never did they cease "wondering, where in the world a tree had grown large enough to be carved into a ship of such huge size; for they supposed it had been cut out from a single trunk of a tree, like an Indian canoe."

LANDING ON BLAKISTONE ISLAND

A landing was made March 25, 1634; a huge cross, hewn out of a tree, was erected, with prayers and thanksgiving, and solemn and formal possession of the land, both in the name of the spiritual Christ and the temporal king, was taken.

The waters around the island were shallow and had to be approached in shallops. A boatload of womenfolk going ashore to stage Maryland's first wash day was overturned. Some of the women narrowly escaped drowning, and Governor Calvert reported much linen lost.



Photograph from Edward Padgett

GALLANT KNIGHTS JOUSTING IN HERRING CREEK PARISH, MARYLAND

This tournament sport goes back to old English times.

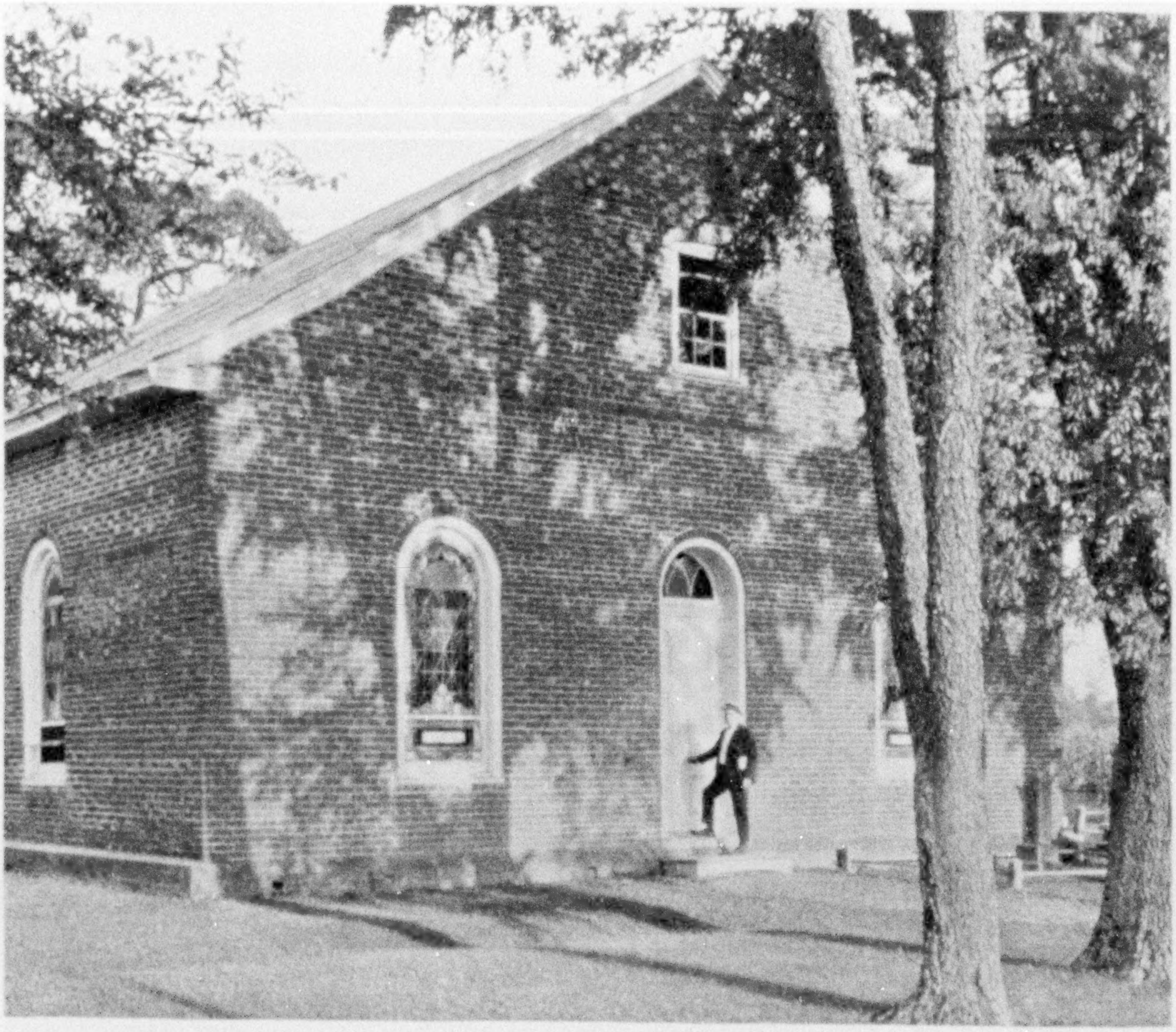
including some of his own, "which was no small matter in these distant parts."

Father White, one of the colonists, thought the lower Potomac "the greatest and sweetest river I have ever seen. The Thames seems a mere rivulet in comparison with it; it is not disfigured with any swamps, but has firm land on each side. Fine groves of trees appear, not choked with briers or bushes and undergrowth, but growing at intervals as if planted by the hand of man, so that you can drive a four-horse carriage, wherever you choose, through the midst of the trees . . . The land abounds in cedar and sassafras trees, and flowers and herbs, for making all kinds of salads." *

Leonardtown is reached at an early hour, and the devotee of Maryland history, of course, will want to be out with the dawn to explore the seat of the State's first county, where lived the forbears of Francis Scott Key.

At sunrise our little steamer casts away once more, calls at several quaint river landings, and then turns its prow toward the Virginia shore, where a half day is spent among the hamlets of Yeocomico and Coan rivers, whence came names writ large on history's page—the Carters, the Washingtons, the Marshalls, and the Lees.

* "Narrative of a Voyage to Maryland," by Andrew White, S. J. Maryland Historical Society, Baltimore, 1874.



Photograph by Edwin L. Wisherd

REHOBOTH CHURCH, BUILT BY THE FATHER OF ORGANIZED PRESBYTERIANISM IN THE UNITED STATES

In 1706 Francis Makemie, an Irish minister, who had come to Maryland in 1683, erected this house of worship near Pocomoke. In the same year he organized at Philadelphia the first General Presbytery of America and was chosen the first moderator.

across-the-river neighbors of the lords of the manors of Maryland.

Late afternoon finds our boat again in the inlets, bays, and rivers of the Maryland shore. Presently she ties up at Grason's Wharf, on St. Inigoes Creek. Just another landing it may be to the ordinary traveler, but to the initiated it is Cross Manor, upon which stands the oldest house in Maryland. It peeps out of a noble grove of oaks surrounding a lawn whose one-time boxwood bushes are now great trees with a circumference of 45 feet (see illustrations, page 138).

And hard by is the flower garden, blooming as it did nearly three centuries ago, in the happiest days of Deputy Governor Thomas Cornwaleys, one of the richest manorial lords of his time, who came with Leonard Calvert on the *Ark*.

ST. MARYS AFTER NEARLY THREE CENTURIES

The next landing is Brome's! For St. Marys, though a shrine to which Christendom owes a pilgrimage, is only a memory that has no place in a steamer's timetable.

St. Marys was the site chosen by Leonard Calvert for the first settlement. Here he bought 30 miles from the Indian king, with a quantity of axes, hoes and broadcloth, and the colonists—20 "gentlemen" and 300 artisans, half Catholic and half Protestant—disembarked (p. 134).

The situation of their new home had

Photograph by Edwin L. Wisherd

ON THE NATIONAL HIGHWAY BETWEEN FROSTBURG AND CUMBERLAND

One could travel all over the United States and find no region of similar length surpassing in interest the great east-west highway of Maryland, stretching 400 miles from Ocean City to Oakland. That highway seems, indeed, a great aisle in a vast outdoor museum, lined with exhibits that constitute a cross-section not only of Maryland life, industry, scenery, and history, but also a cross-section that typifies all eastern America.

been wisely chosen. It lay in the midst of fertile fields, already cultivated by the Indians and ready for the plow. So provident was Calvert's management that the very first autumn the new colonists had grain enough to send a shipload to New England to be exchanged for salt codfish.

It is not surprising that the colonists who founded Maryland sought religious liberty for themselves, but it was a novel proceeding that, in an age when Christendom was torn by fratricidal strife because of differences in creed, they should promise to give the same privilege of freedom of conscience to all others that came to live with them.

While as yet there was no spot in Europe or America where men's religious convictions were too sacred to be invaded by tests of state or assailed by the forces of bigotry, Lord Baltimore's first order to his colonists was that there should be no differences on account of religion.*

* The holograph original of Lord Baltimore's instructions to the colonists is one of the carefully guarded treasures of the Maryland Historical Society at Baltimore.

Photograph by Clifton Adams

AN OX TEAM AT A COUNTRY STORE NEAR ANNAPOLIS

The records show that at first both Catholics and Protestants used the community church; that a proclamation was issued in 1638 for the suppression of "disputes tending to the opening of a faction in religion." And an act of the Assembly declared that "no person professing to believe in Jesus Christ shall be troubled, molested, or discountenanced, for, or in respect of, his or her religion."

Thus Protestant and Catholic dwelt together in harmony, neither attempting to interfere with the rights of worship of the other, and "religious liberty obtained a home, its only home in the wide world, at the humble village which bore the name of St. Marys" (George Bancroft).

MANY DENOMINATIONS WERE NURTURED IN LIBERAL MARYLAND

Enjoying an enviable reputation for toleration, Maryland, though founded by Lord Baltimore primarily as an asylum for Roman Catholics, soon became the sanctuary of Puritans and Quakers, and of Protestants of many creeds, who, fleeing persecution in France and the German States, sought happiness within her borders and found it.

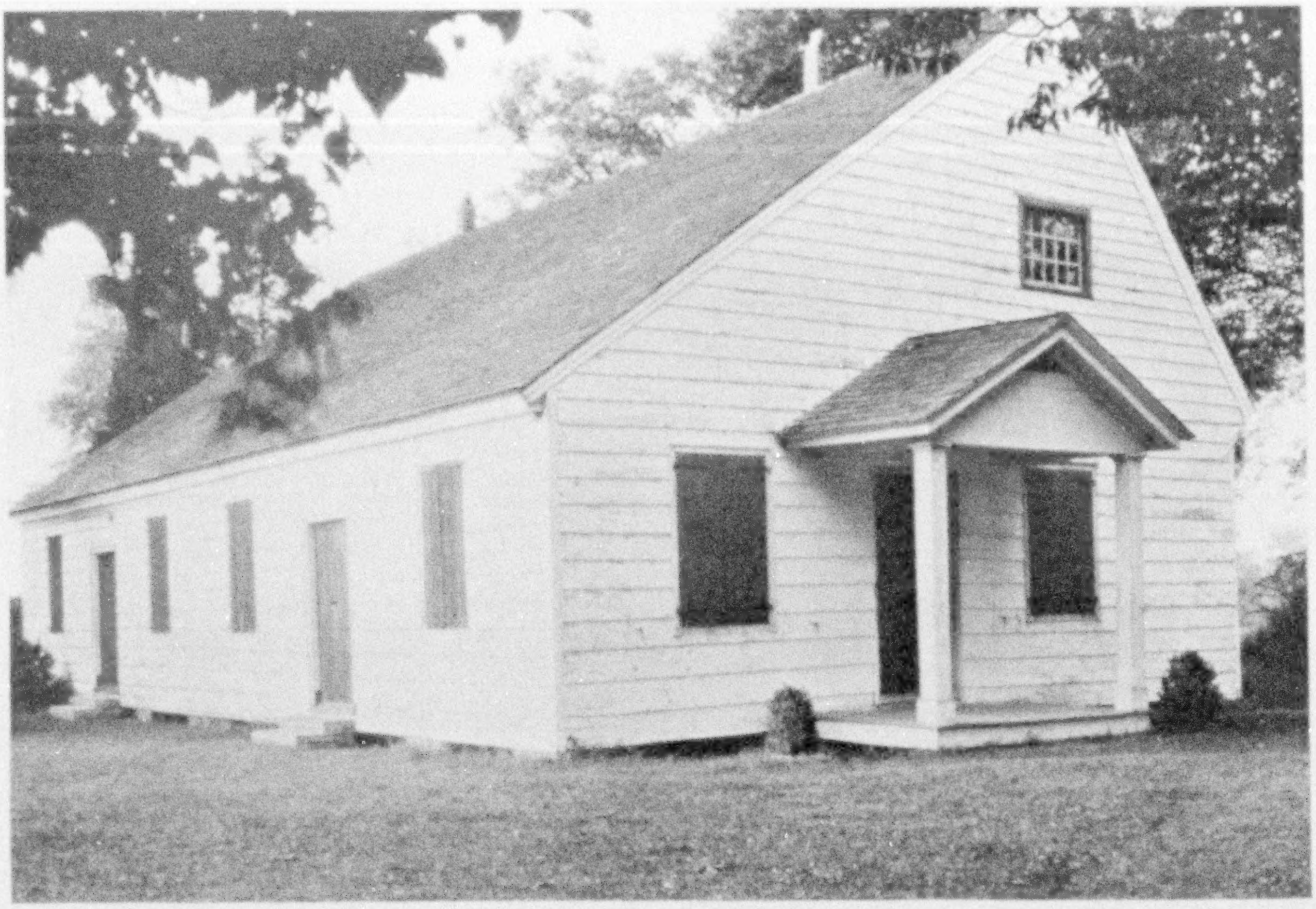
A number of America's important religious denominations—notably the Methodists, Presbyterians, the German Reformed Church, the United Brethren, and the Lutherans—either were formally organized in Maryland or gained early American footholds there.

And it was Maryland which laid early and continued emphasis on the complete separation of the State and the Church until that principle became a cornerstone of national policy.

At St. Marys, too, that ideal of democracy which places the origination of laws in the hands of the people and the power of veto in the hands of the executive, the very essence of political freedom, was early established.

THE HOME OF AMERICA'S FIRST WOMAN SUFFRAGIST

And near by is a tract of land known as the Sisters' Freehold, where lived



Photograph by Edwin L. Wisherd

THE FRIENDS' MEETING HOUSE, BUILT IN 1682-4, AT EASTON

This and the Old Ship Church of Hingham, Massachusetts, are said to be the oldest wooden buildings for public worship in the United States. It was constructed from timbers hewn on the site. Continuous records of the Society since 1660 are in the archives of the Maryland Historical Society. William Penn preached here in 1700 and "Lord and Lady Baltimore, with their retinue," were present.

Margaret Brent, America's first woman suffragist, and, in fact if not in name, America's first woman governor.

Governor Leonard Calvert on his deathbed deputed Thomas Greene his successor as governor, and Mrs. Margaret Brent his executrix, with the brief instructions, "Take all and pay all."

Mrs. Brent had come to the province in 1638, with her sister Mary and two brothers, bringing over nine colonists—five men and four women. They took up manors, imported more settlers, and became leaders in the life of the colony.

She anticipated all later suffragettes by appearing before the General Assembly and demanding a seat and vote. The minutes of January 21, 1648, recite:

> "Came Mrs. Margaret Brent and requested to have vote in the house for herself and voice also; for that at the last Court 3rd January, it was ordered that the said Mrs. Brent was to be looked upon and received as his Lordship's attorney.
>
> "The Governor denied that the said Mrs. Brent should have any vote in the house.
>
> "And the said Mrs. Brent protested against all proceedings in this present assembly, unless she may be present and have vote as aforesaid."

Presently that same Assembly had occasion to pay her a remarkable tribute.

Leonard Calvert, in his struggles with Claiborne and Ingle, who had deposed him, had raised a small force of Virginians and fugitive Marylanders, pledging his own and his brother's estate to secure their pay, if they would help him recover the colony. His death prevented him from redeeming his pledge, and the soldiers, clamoring for their pay, threatened mutiny if it were not forthcoming.

Comprehending the dangers of the situation, Mrs. Brent sold enough of the Proprietor's cattle to pay the arrears, quieted the soldiers, and so handled the whole situation that the Assembly reported to Lord Baltimore:

"We do verily believe and in conscience report that it was better for the colony's safety at that time in her hands than in

Photograph by H. A. Strohmeyer, Jr.

RATCLIFFE MANOR, AT EASTON, MARYLAND, BUILT IN 1746

On the grounds of this estate are some handsome trees several centuries old, and the boxwood is among the finest in Maryland.

any man's else in the whole Province; for the soldiers would never have treated any other with that civility and respect," and that but for her timely action all would have gone to ruin. Mrs. Brent was a kinswoman of Calvert.

ONE OF THE EARLIEST WOMEN JURIES SAT IN MARYLAND

One of the earliest women juries of which we have knowledge was drawn by the General Provincial Court held at Patuxent on September 22, 1656. The court "ordered that a jury of able women be impanelled and to give in their verdict to the best of their judgment" as to whether Judith Catchpole had been guilty of infanticide. The names of the women serving on this jury were Rose Smith, Mrs. Belcher, Mrs. Chaplin, Mrs. Brooke, Mrs. Battin, Mrs. Cannaday, Mrs. Bussey, Mrs. Brooke, Elisabeth Claxton, Elisabeth Potter, and Dorothy Day.

The jury returned a verdict of "not guilty," and the Court directed that "the said Judith Catchpole be acquitted of that charge unless further evidence appear."

The records indicate that this was a step in advance of the Old English Common Law, because the latter seems to have required that twelve men should sit with the women in judging the facts.

One climbs reverently the bluff that thrusts its way out into the placid, blue waters of the nearly-a-mile-wide river.

To-day all that is left of the mulberry tree under which Governor Calvert negotiated with the Indians for their lands, and upon which the public notices seem to have been posted, is the wood in the pulpit, altar, and desks of the little Trinity Episcopal Church. The fine obelisk erected by a grateful State to the memory of Leonard Calvert stands on the site of the old tree (see page 135).

Governor Calvert advised his brother, Lord Baltimore, that he had caused a stockade to be built, which was 120 yards square, with four flanks. On it he had mounted "one piece of ordnance and six murderers." These "murderers" were

Photograph courtesy of U. S. Bureau of Fisheries

A ONE-HORSEPOWER MACHINE FOR HAULING IN A MARYLAND SHAD SEINE

very small cannon for close-range firing. One of them, pockmarked with the rust of three centuries, is now mounted in the statehouse grounds at Annapolis, and others are in the keeping of Georgetown University, at Washington, as are the old statehouse bell, the council table, and other relics of the ancient little capital.

A tenant did not have to pay much for the use of land in those days. A Point Lookout farm of 100 acres was rented for two barrels of corn and two capons annually. Quitrents varied, as a rule, from 12 pence for 50 acres to 20 shillings for a manor.

Stealing one's self was a crime. Many people, unable to pay their own way to America, "indentured" themselves for a term of years, usually three, to work out the cost of their importation. If they "jumped" their contracts they were dealt with harshly.

The dusk gathers as the steamer comes back again into the broad reach of the lower Potomac. Passing Calvert's Rest, she rounds Point Lookout. In the gathering darkness one descries another shaft, perhaps a quarter of a mile above the point. It speaks of another and a tragic period of American history.

During the Civil War the Federal Government maintained a military prison here, and the monument has been erected by the United States to mark the spot where nearly 3,500 Confederate soldiers died in prison.

THE RICHES OF CHESAPEAKE BAY

In the darkness Point Lookout is rounded. Point Lookin is passed, Point No Point offers a gleam of light, and the staunch little trader plows her way up the Chesapeake Bay, with a brief pause in the Patuxent, arriving in Baltimore with the dawn.

When the ancient valley of the Susquehanna River, which once extended to the Virginia capes, subsided and admitted the sea into the vast area now covered by Chesapeake Bay, the lower parts of the

Photograph by Swepson Earle, Conservation Commissioner of Maryland

A CHESAPEAKE BAY SCHOONER

In Maryland's great inland sea every type of ocean craft may be observed.

tributaries of the lost river—the Potomac, Rappahannock, and James rivers—became broad estuaries too wide for railroads and highroads to bridge.

But Chesapeake Bay has some compensations to offer for its practical isolation of a third of the State from the remaining two-thirds. In it Maryland possesses jointly with Virginia one of the richest fishing grounds in the world, with a versatility of water products almost unrivaled.

From southern New York and central Pennsylvania, northeastern West Virginia, and northern Virginia come the surplus waters of more than 40,000,000 acres of agricultural land, laden with rich supplies of microscopic plants that make perfect pastures for the myriad host of edible aquatic creatures that inhabit the Bay and its estuaries.

THE OYSTER'S BIOGRAPHY

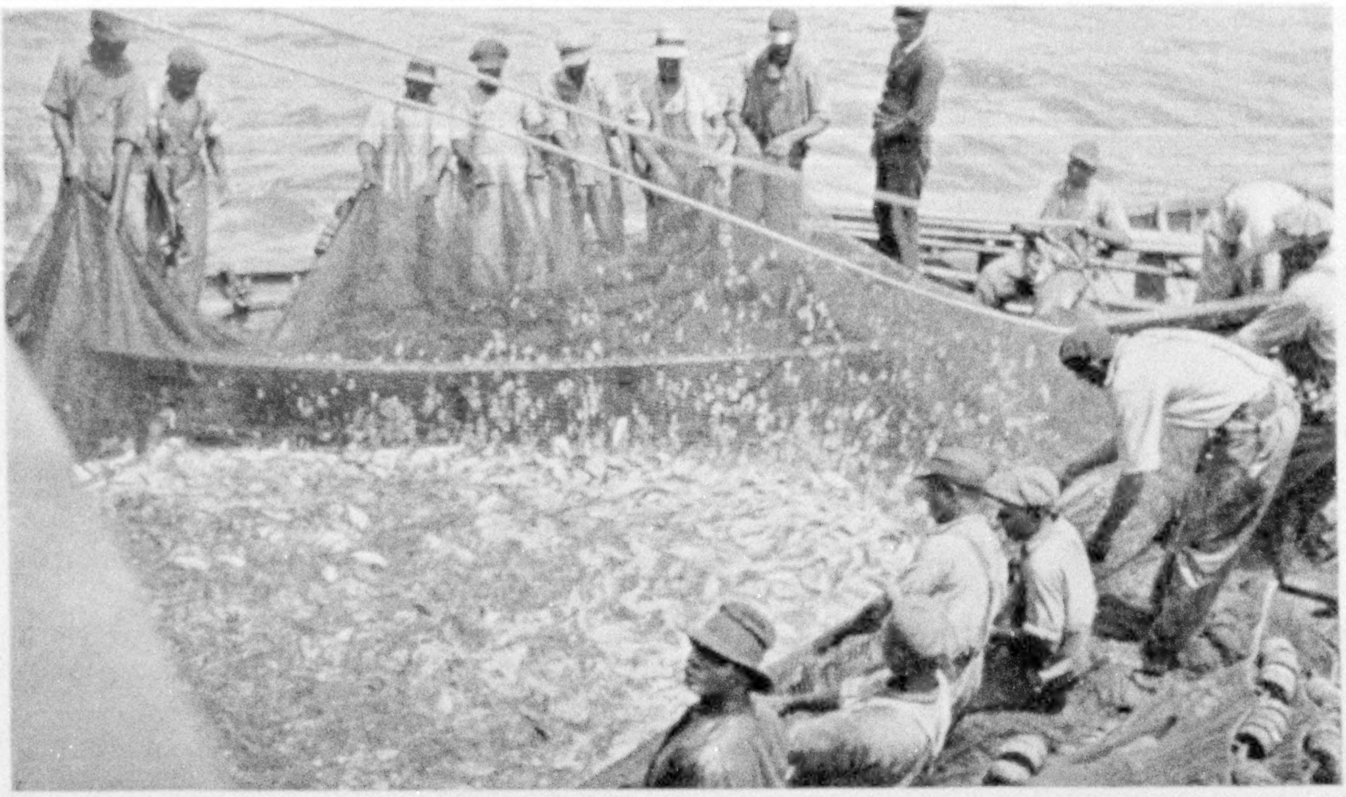
Whatever we eat, whether fish, flesh, or fowl, is after all only proxy for grass, and Chesapeake Bay is, in the last analysis, a vast laboratory where grass is transformed into human food—oysters, crabs, terrapin, shad, and mackerel.

The life history of the oyster is one of Nature's romances. A single female may spawn as many as 60,000,000 eggs in a season, the average being about 16,000,000. After these are discharged they float, but only one out of thousands of them comes into contact with the milt from male oysters, and only a very few of the fertilized eggs develop into oysters. If it were not so, the bay would soon be a solid mass of bivalves.

Four hours thereafter the embryo becomes a free-swimming larva, so small that an ordinary fish might easily swallow a million of them at a mouthful. In about eighteen days this larva tires of its wanderings and seeks a place to settle down on clutch or shell.

There it begins to build itself a stone house, exuding a gummy substance which develops into a leathery membrane, this in turn becoming lime crystals—stone.

Week after week the baby oyster works on, straining barrel after barrel of water in order to get additional lime for its flinty house. It must prove itself a paragon of industry, for foes are many, and if they happen along before the shell is completed and hard, its labors are over.



Photograph courtesy of U. S. Bureau of Fisheries

A CATCH OF MENHADEN

Chesapeake Bay fishermen have specially constructed ships for taking big hauls of the bountiful menhaden, which has a variety of uses. Oil is pressed out of the cooked fish and sold to manufacturers of soaps and paints, while the solid residue makes a rich fertilizer. The dried fish flakes also make an excellent food for poultry, especially for laying hens, and hogs fatten readily on such fare.

Photograph by Jacob Gayer

FROZEN FISH IN A COLD-STORAGE PLANT AT CRISFIELD

Photograph by Jacob Gayer

TONGING OYSTERS NEAR NANTICOKE

The shell is built up, layer by layer, each as thin as tissue paper. The outside of the shell is the old part and the inside the new.

If one examines with a microscope the ridges on the surface of the gill of an oyster, he will find them to be fringed with tiny hairs, each less than one five-hundredth of an inch long and of a diameter too small to be seen even with a magnifying glass of considerable power.

Each of these microscopic hairs constantly waves back and forth, quickly one way and slowly the other, like an oar in rowing. Acting in unison, their motion drives the water into the pores of the oyster and through a series of tubes, whence it passes out again after its food content has been extracted.

STRAINING WATER TO GET ITS FOOD

The gills are covered with an adhesive secretion, to which the microscopic organisms contained in the water stick as flies to fly paper. The hairs which drive the water through the gills push the secretion and the food it entangles toward the mouth, which is near the hinge of the shell.

Many gallons of water must be strained every day to provide food for an oyster, but the straining process is as natural as breathing with man. We take air into our lungs, strain out some of its oxygen, and then exhale the rest, with its added load of carbon, but the process is so mechanical that few of us give it a passing thought.

In order that the oyster may feed freely and almost continuously, the edges of its two shells are kept some distance apart by a ligament which acts just as a soft rubber eraser would in keeping the edges of the two covers of a book separated. This ligament is not living tissue.

There develops, however, a muscle connecting the two parts of the shell, which can be expanded and contracted at will. When the oyster finds itself in danger, this muscle shuts the door with a snap, if not with a bang.

An adult oyster can live on a bottom where there is some mud, so long as it does not interfere with the bivalve's water-straining activities; but a young oyster must have some solid surface to which it can attach, for it would be buried by a very small amount of mud. By

Photograph by Jacob Gayer

HARD-SHELL CRABS COMING OUT OF THE STEAM KETTLE

dumping, during the breeeding season, a lot of oyster shells where there is not much mud, beds suitable for the development of young ones are provided. In some cases as many as a thousand bushels of shells to the acre are required.

THE WAYS OF A CRAB

When dredging and tonging for oysters ends, the pursuit of the blue crab begins.

At spawning time the female crabs make their way down Chesapeake Bay, to be near the briny waters of the ocean when producing their eggs, which are carried on the abdomen in a spongelike mass about one-third as large as the crab itself. In this state the crustaceans are known as "sponge" crabs. There may be as many as 2,000,000 eggs in one of these masses.

When the baby crab hatches, it is no more like an adult crab than a wiggle-tail is like an adult mosquito, and much less like one than a tadpole is like a frog.

In this form it is known as a zoëa, and looks not unlike a malarial mosquito larva. It molts, or sheds its shell, six times, and then is transformed into a megalops, with a sharp-pointed nose, big eyes, legs like a crab, and a tail like a crawfish. The megalops, in its turn, undergoes a number of molts, and finally, after a month has elapsed from the day it hatches, changes into a tiny crab about one-eighth of an inch wide.

Thereupon it is ready to leave the salt water of the Virginia capes area and begins a slow pilgrimage northward; for the grassy bottoms of Tangier Sound and of the tidal rivers up the Bay are calling it.

Born in June and July, becoming full-fledged tiny crabs a month later, they molt, or doff their outgrown shells, about twice a month, and by the following February they are fair-sized crabs.

HOW THE CRAB CHANGES ITS CLOTHES

When the water gets cold they go to the bottom and stay there until the warmth of spring calls them back. If allowed to live, they grow to maturity about July or August. Then they mate, and the female treks back to the Virginia capes to spawn, while the male remains in Maryland waters.

When the crab gets too big for its shell, it begins to cast it off—a process that requires from five days to a week. At first

Photograph by Jacob Gayer

HARD-SHELL CRABS IN A COOLING ROOM, AFTER HAVING BEEN STEAMED: CRISFIELD

a black line, succeeded in two days by a white one, appears around the two outer segments of the swimming legs. It is now, in the parlance of the Bay, a "green" crab.

A little later the white lines turn red, a set of fine wrinkles appears between the wrist and upper arm of the claw, and it becomes, in crabman terms, a "peeler."

Then the upper shell is lifted and the crab slowly pushes itself out of its old suit, first through the back, and then through the front, above its eyes. In this stage the initiated call it a "buster."

Finally it wrenches its legs out of the old shell and frees itself entirely from its old clothes. It is then a "soft shell" and if caught in this stage is the favorite of all crabs.

But in a day's time it will develop a new shell. This process taxes its resources, and it becomes so poor and thin as to be worthless. In this stage it is called a "buckram." If allowed to remain in the water a little longer, however, it will get fat again.

The hard-shell crabs are voracious and are easily taken with baited lines. The soft-shelled ones hide in the swamp grass and sand and take no food. They are captured by hand scoop nets or scrapers.

At home alike in water fresh enough to drink and that as salt as the open sea, the crabs make their way into all the creeks and inlets of tidewater. In many places they are so numerous that there is no market for them, and one often sees the shore strewn with thousands of them shaken out of the fishermen's seines and left either to die or find their way back to the water, as chance operates against or for them. In southern Chesapeake waters, indeed, the fishermen in the estuaries often trample them to death in order to keep them from clogging the seines. After hard storms one frequently sees them washed high and dry on the beach in veritable windrows.

But, like the oyster, the crab has been the victim of overexploitation, and the industry has so declined that Virginia and Maryland crabmen, filled with alarm lest it disappear entirely, have begged their respective States to save it.

The efficient Maryland Conservation Commission states that the Bay and its

Photograph by Jacob Gayer

A MOBILIZATION CAMP FOR DIAMOND-BACKS AT CRISFIELD

There are some ten thousand terrapins in this inclosure, but only a few hundred were willing to poke their heads above the water to have their pictures taken. While in this fattening pen, the candidates for the epicure's casserole are fed on crab meat and oyster shells (see, also, illustrations, pages 153 and 163).

estuaries are just as capable of feeding vast hordes of crabs to-day as in the past; that the waters around the Virginia capes are just as salty as they were when Captain John Smith first landed at Old Point Comfort; and that the crabs have fallen victims to no blight, like the chestnut trees.

Photograph by Jacob Gayer

IN A TERRAPIN COMPOUND

The diamond-back "farmer" has received an order for a barrel of terrapins of a certain size, and he is carefully measuring the restaurant candidates. Not all of the diamond-backs in this compound have been raised on the farm; many are purchased a few at a time by the farmer from boys of the neighborhood who find individual turtles and dispose of them in this community "clearing house" from which they are marketed (see, also, page 163).

REJUVENATING THE CRAB INDUSTRY

"We can tell you how to rejuvenate your industry," it says. "Let Virginia crabmen forego the taking of 'sponge' crabs at any season and shorten winter dredging from six to three months. Let both States raise the legal length of the marketable hard-shell crab from five to six inches (from tip to tip of spike), and Maryland that of soft-shell crabs from three to three-and-a-half inches. And then stop the practice of putting 'green' crabs in floats, with the attendant 60 per cent mortality, and turn loose the 'buckrams,' and your industry will 'come back' to your heart's content."

Most of this advice has been enacted into law. At Crisfield a crabman was selling his boatload of crabs to a dealer recently. The crabman threw into the dealer's boat an undersized one or two. "Don't throw any of them in," demanded the dealer. "You can put a few dead ones in, but you had better not put in any that are undersized." When there was doubt, a ruler was brought into play and the crab measured. So at least a part of the law is being enforced.

Once Maryland was the center of the gastronomic universe, for in a bygone generation the diamond-back terrapin represented the supreme viand where men loved to live well. The Chesapeake Bay teemed with these candidates for the banquet table's preferment, and any fine day they could be seen sunning themselves on the sand bars and flats. But the organized preying of commerce did what all the natural enemies of a species seldom do, and the diamond-back has almost reached the vanishing point in Chesapeake waters.

The little capital on the banks of St. Marys River was so far away from the center of the future State that it was inevitable the capital would sometime be moved. And when the seat of government was transferred to Annapolis, first called Providence when founded by Puritans who were denied admittance into Virginia, it faced a similar isolation.

ANNAPOLIS HAD HER TEA PARTY

So it happens that, while Annapolis is the capital, the executive offices are in Baltimore, and whoever has business with the State officials, from Governor to Automobile Commissioner, goes to Baltimore. The Legislature meets in Annapolis, but the executive business is transacted mainly in the Monumental City.

America should rejoice that it is so, for thus has Annapolis been preserved as our country's most truly colonial city. You may wander about this fine old community and feel that you are living in those dramatic days when the little city on the Severn had a major part in shaping the course of the Nation's history.

Going down to the water front, you can pick out a sailing craft and vision the square-sterned, 60-ton brigantine, *Peggy Stewart*, which, on October 15, 1774, arrived at Annapolis from England with an assorted cargo, including 17 packages of tea. Anthony Stewart, the owner of the brig, was a Marylander who had signed the nonimportation agreement. In order to unload the bulk of the cargo, he rashly paid the duty on the tea.

When he was called to account he begged to be allowed to burn the tea publicly. But he was not to escape so lightly. Finally Stewart purged himself by undertaking to burn his brig, with the tea aboard. His offer was accepted, and the brig was run aground and burned to the water's edge, in open day, by men who operated in broad daylight, wore no disguises, and were ready to admit their act and abide its consequences.

According to John Galloway, an eyewitness, the majority would have been satisfied to burn the tea; but, however that may be, it was an act that fired the Colonies and cast Maryland's lot irrevocably with the forces of freedom. A picture of the firing of the *Peggy Stewart* hangs on the walls of the statehouse. (The Boston Tea Party took place on December 16, 1773.)

Charles Carroll headed the delegation chosen at Annapolis to represent the province in the Continental Congress.

When it came his turn to sign the Declaration of Independence, there was some bantering remark as to whether the signers would hang singly or hang together, if the Revolution should fail.

Some one added that Carroll would have a chance to escape, because there were so many Charles Carrolls that the British would not know which to seize.

Thereupon Carroll reached for his pen and added the words, "of Carrollton," with a remark that now they would have no trouble to identify him if he were ever called upon to forfeit his life for the part he played in the cause of independence. Carroll outlived all the other signers, dying November 14, 1832, at the age of 95 years.

MARYLAND BODY OF SOLDIERS WON FAME ON MANY FIELDS

Begun in 1772, the Maryland Capitol is filled with memories of those eventful years. Scores of pictures that grace its walls are of that famous body of soldiers, the Maryland Line — companies, regiments, and brigades of which fought on every major Revolutionary battle field from Massachusetts to Georgia.

We see them holding open the jaws of the trap that had been set for Washington's army in what is now Prospect Park, Brooklyn, and gaining for the Commander-in-Chief "an hour more precious to American liberty than any other in its history." We see them so delaying Howe's march on Philadelphia that he was unable to go to the rescue of the beleaguered British at Saratoga, which sealed the fate of Burgoyne.

The voice of General Washington himself comes down the years, as he told Ramsay at Monmouth that "if you can stop the British for ten minutes, until I can form, you will save my army." He held them thirty minutes! And we hear General Greene saying of a charge by the Marylanders at Eutaw Springs that "it exceeded anything I ever saw."

Maryland withheld neither men nor money that the Colonies might be free, and

Photograph by Clifton Adams

A MONTGOMERY COUNTY GREETING FROM A CORNSHOCK

Her rich farm lands, scientifically cultivated; her fabulous wealth of sea food in Chesapeake Bay, and her modern industries centering in Baltimore, Cumberland, Hagerstown, and Frederick make Maryland one of the most self-contained States of the Union.

Photograph by Jacob Gayer

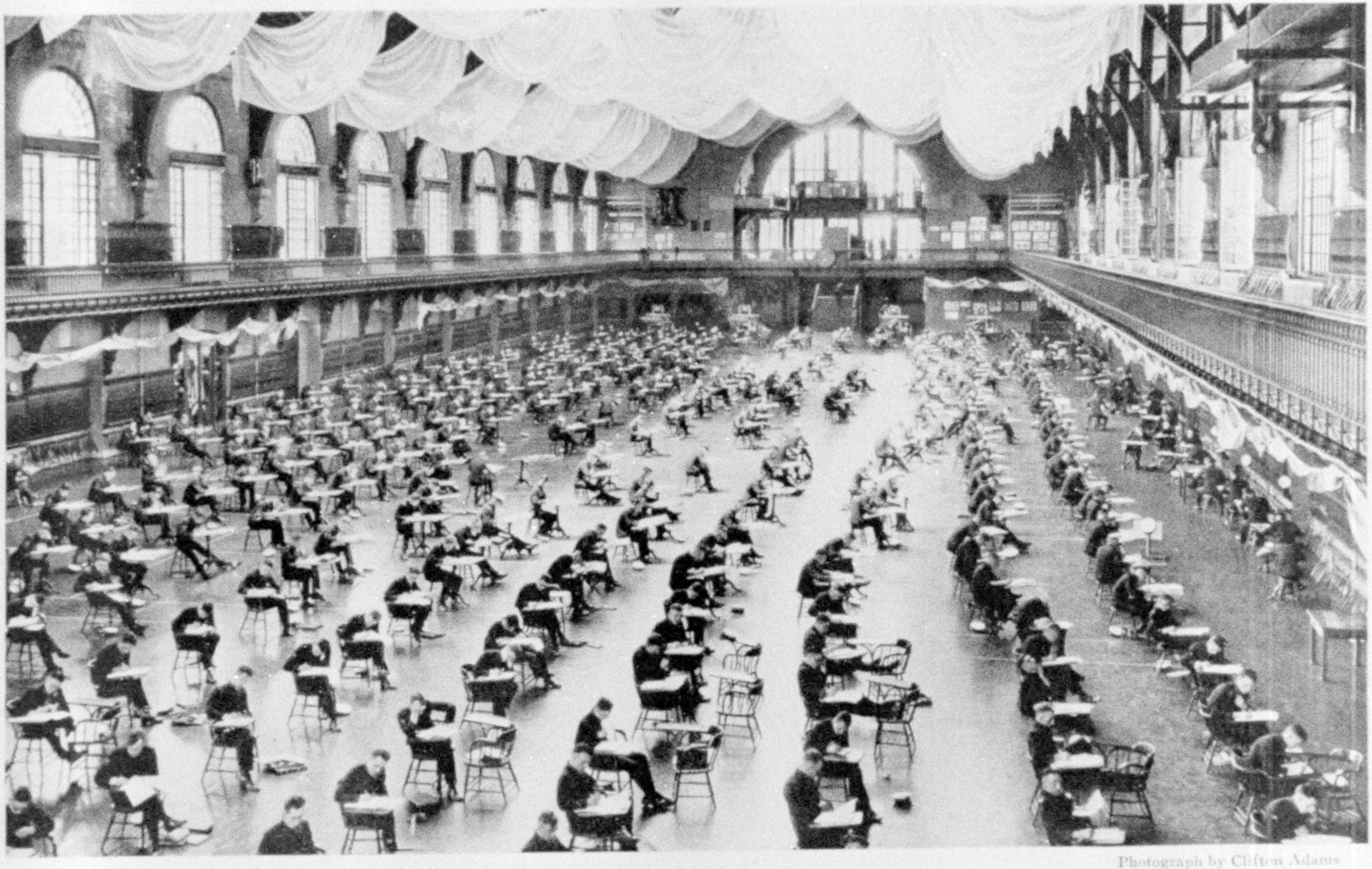
A FLEET OF OYSTER DREDGERS IN CHESAPEAKE BAY

It is a wonderful sight in early spring and late fall to watch the oystermen at work. But when blustery winter comes only the hardiest can remain at the task, and the scene is as dismal as the lives of the luckless gatherers, who seldom live past middle age because of the diseases incident to undue exposure. Under the law the dredgers can only operate under sail during daylight hours, not under auxiliary power.

Photograph by Clifton Adams

A PLEASANT STRETCH OF ROADWAY NORTH OF ANTIETAM BATTLE FIELD, WASHINGTON COUNTY

Along fields and woods, the picturesque old-fashioned rail fence is still to be seen occasionally, but in the main, progressive Maryland farmers have adopted the more utilitarian type seen at the right.



Photograph by Clifton Adams

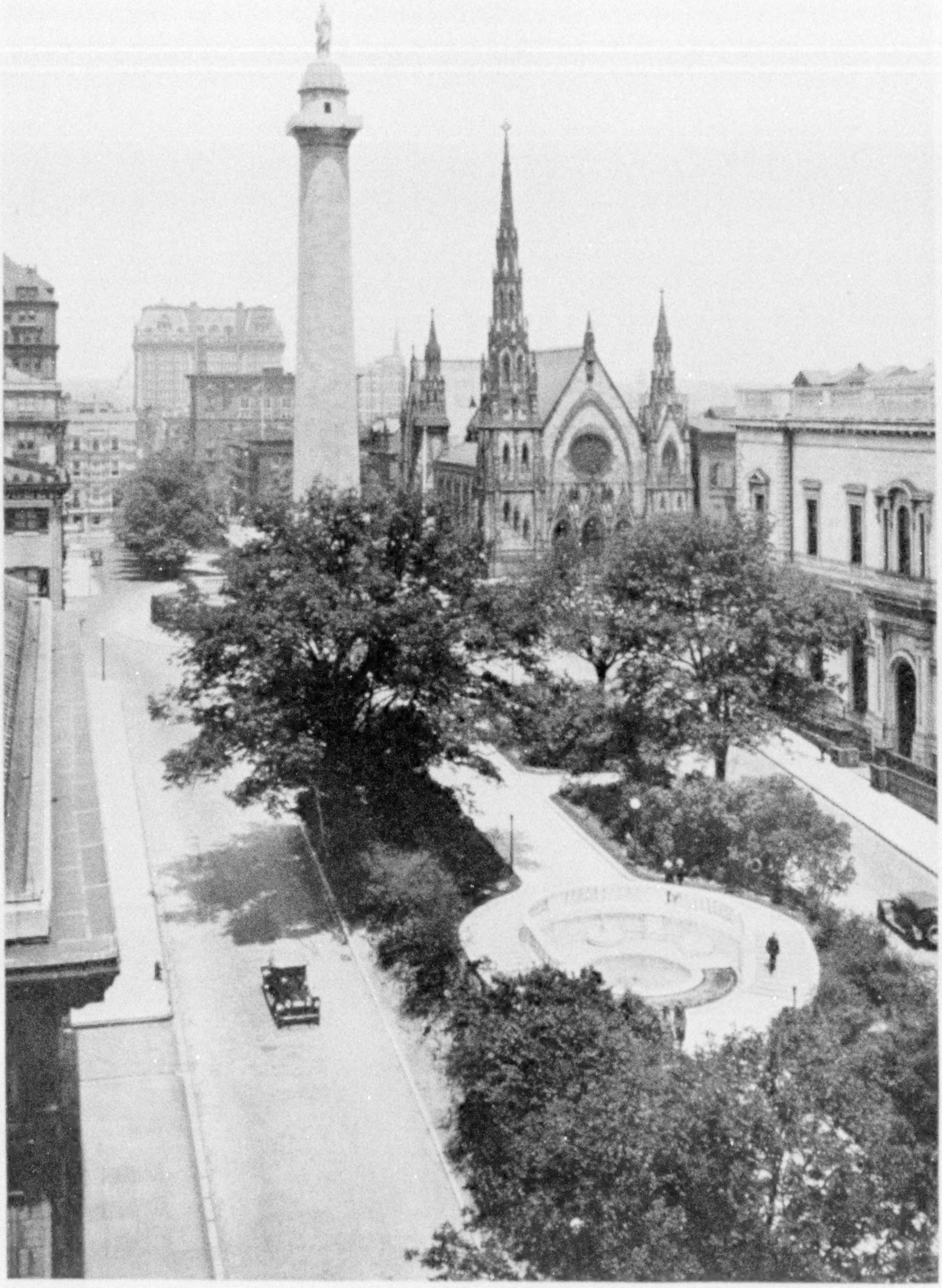
A FIVE-HOUR EXAMINATION IN ORDNANCE, IN DAHLGREN HALL, UNITED STATES NAVAL ACADEMY, ANNAPOLIS

Some 1,700 youths from every State and Territory and the insular possessions of the United States are being trained in Annapolis to-day to maintain the glorious traditions of the United States Navy. The Naval Academy was founded 82 years ago by George Bancroft, Secretary of the Navy during the administration of President Polk.

Photograph by Clifton Adams

MIDSHIPMEN CELEBRATING THE COMPLETION OF THEIR FOUR YEARS OF STUDY AT THE NAVAL ACADEMY, ANNAPOLIS

Great excitement prevails among the first classmen when, before a large and appreciative audience, each prospective ensign is ducked in the waters of Dewey Basin just after he has passed his final examinations (see opposite page). This frolic has recently been discontinued.



Photograph by Hughes Company

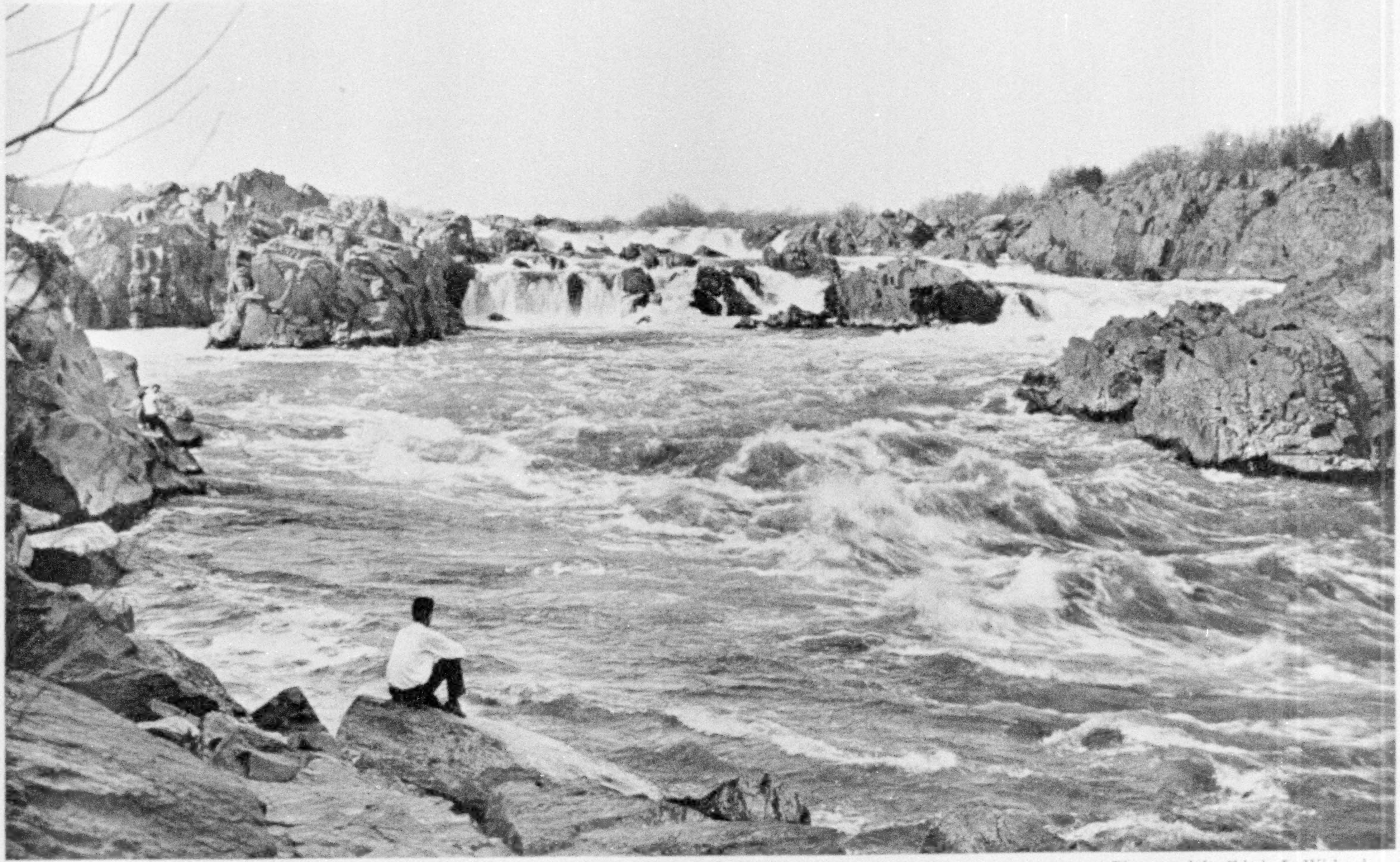
AMERICA'S FIRST MAJESTIC MONUMENT TO THE MEMORY OF GEORGE WASHINGTON

The column rises 130 feet, from a base 35 feet high, in Mount Vernon Place, Baltimore. It is surmounted by a colossal statue of the first President. The view from the top affords a matchless panorama of the city.

Photograph courtesy of Maryland Department of State Forestry

A GIGANTIC MARYLAND RED OAK

This ancient tree, which stands near Sudley, in Anne Arundel County, on the western shore, measures 23 feet in circumference four and a half feet above the ground. It towers to a height of 75 feet.



Photograph by Edwin L. Wisherd

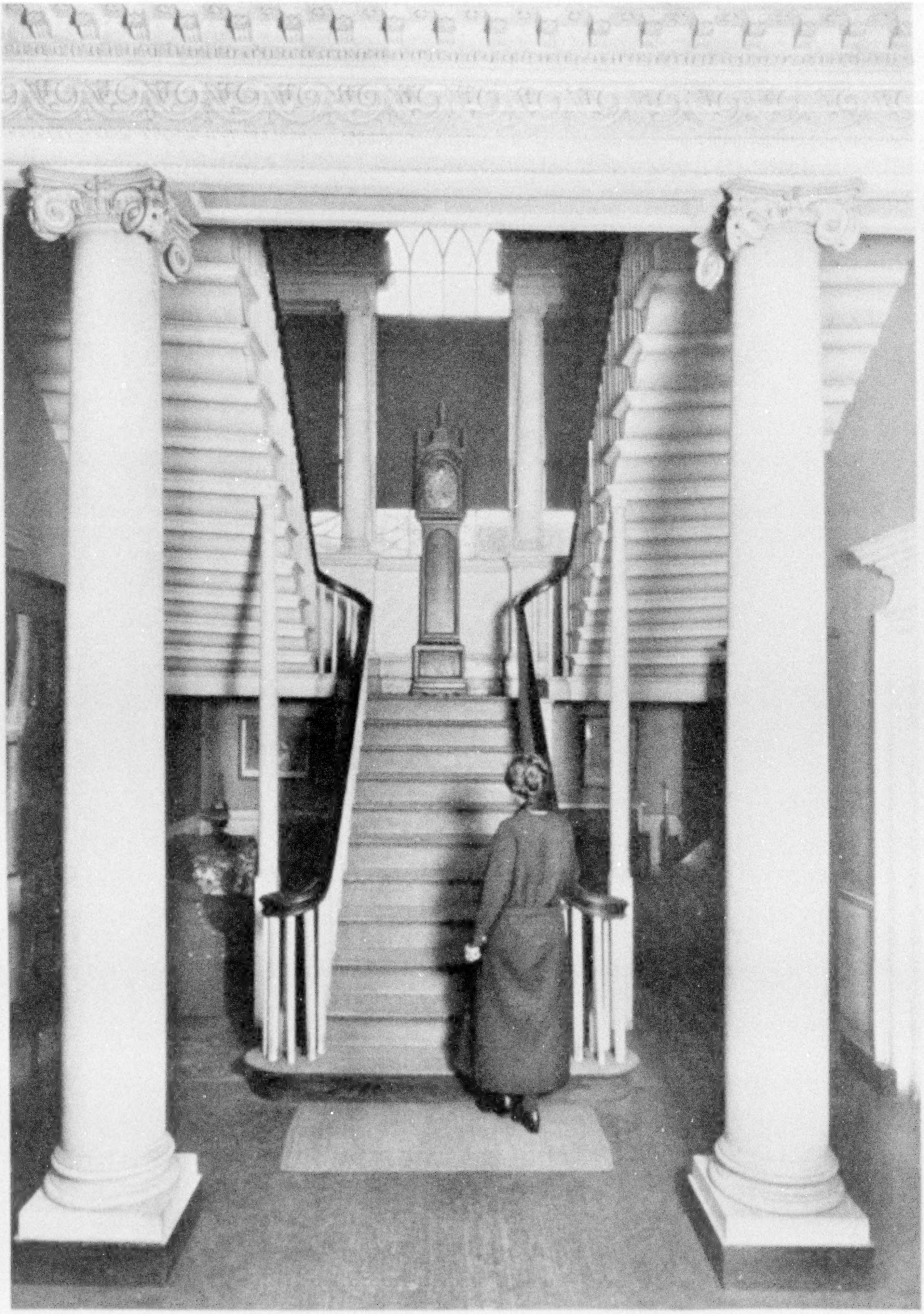
THE GREAT FALLS OF THE POTOMAC, MARYLAND

While the Potomac River practically separates Maryland from Virginia and West Virginia, legally it does nothing of the kind, for the Maryland line is the Virginia and West Virginia bank of that river, the original charter of Maryland specifying that the south bank of the Potomac should mark the southern boundary.

Photograph by Jacob Gayer

TERRAPIN À LA MARYLAND

The diamond-back terrapin are as much at home on land as in water, and during the summer months crawl through the marshes in search of food, which consists of algæ, marsh plants, crabs, fish, and most of the other forms of life that inhabit swamps. They cannot stay under water long at a time, except when hibernating. Then they burrow deep into the mud, out of reach of the frost, and sleep away the winter in a torpor very little removed from suspended animation. In colonial days, terrapin were so plentiful in Maryland watercourses that the great slave owners, when leasing their slaves to small planters, inserted a clause in the contract prohibiting the planter from feeding the slaves terrapin more than three times a week. Now diamond-backs are so scarce that the terrapin farmer (see page 153) gets $25 per dozen for the popular six to eight-inch size and the individual purchaser pays $40 to the retailer.



Photograph by Jacob Gayer

A HALL AND STAIRWAY IN AN ANNAPOLIS HOME

"Annapolis has been preserved as our most truly colonial city. You may wander about this fine old community and feel that you are living in those dramatic days when the little city on the Severn had a major part in shaping the course of the Nation's history" (see text, page 154). This house was built in 1770 by Samuel Chase, one of the Signers of the Declaration of Independence, and Associate Justice of the Supreme Court of the United States, 1796-1811.

Photograph by Nelson Edwards

WHERE OUR NATIONAL ANTHEM WAS BORN

The national ensign which inspired Francis Scott Key to write "The Star-Spangled Banner" was, during the bombardment of Fort McHenry, September 13, 1814, flying from a pole occupying this position. The old fort on Locust Point, near Baltimore, was long in ruins, but it was used as a hospital during the World War and is now to be transformed into a fitting shrine for Key's immortal song.

THE OLD BRIDGE WHICH CARRIES THE CHESAPEAKE AND OHIO CANAL ACROSS THE MONOCACY RIVER

Photograph by Percy E. Budlong

CATTLE ALONG THE SHORE OF ST. MARYS RIVER, NEAR THE HISTORIC TOWN WHERE THE FIRST MARYLANDERS SETTLED (SEE PAGE 141)

Official Photograph, U. S. Navy

A SMOKE SCREEN LAID BY A U. S. NAVY PLANE IN CHESAPEAKE BAY NEAR BALTIMORE

There are two types of screens used by the Navy—a curtain screen, which is dropped a distance of 500 to 1,000 feet by a plane equipped with special apparatus, and an exhaust screen (shown above), made by injecting oil and glycerin into the motor. The plane which spread this screen has just passed out of the range of the camera.

DEVOTEES OF HOCKEY AT HOOD COLLEGE, FREDERICK, MARYLAND

Young men and women from every State enroll in Maryland's institutions for higher education. They include Johns Hopkins University (see pages 178-179); St. John's College, at Annapolis; University of Maryland (see page 198); Goucher College, Loyola College, and Notre Dame, at Baltimore; Western Maryland College, at Westminster; Mount St. Mary's College and St. Joseph's College, at Emmitsburg; Blue Ridge College, at New Windsor, and Washington College, at Chestertown. The last, founded in 1782, was the first college to bear the name of Washington, who made a substantial contribution to the endowment fund, became one of the board of governors, and in 1789 received the honorary degree of Doctor of Laws from the institution.

Photograph by Nelson Edwards

A MOUNTAIN OF OYSTER SHELLS

This mammoth reminder of the wealth in sea food which Maryland derives from Chesapeake Bay is now being converted into chicken feed at one of Baltimore's factories.

no State, in proportion to population and wealth, contributed more of either.

MARYLAND'S FORESIGHT SAVED THE UNION

While her soldiers were fighting so valiantly, her statesmen, meeting in the halls of the old statehouse at Annapolis, originated a pioneer thought that prevented the Colonies from falling apart after their victory. With great foresight, the Maryland leaders realized that the harmonious relations existing between the thirteen Colonies must inevitably be destroyed, after the triumph of American arms, by bitter disputes arising as to the ownership of the vast region northwest of the Ohio, east of the Mississippi, and south of the Great Lakes.

These lands included an immense triangular territory, nearly one thousand miles on a side, well watered, exceedingly fertile, and with fine climate, which when settled would become of great value.

As early as October 15, 1777, one month before the Articles of Confederation were proposed to the legislatures for ratification, Maryland asserted in Congress that this vast domain, title to which was ill-defined and conflicting, should be placed under the sovereignty of the National Government.

The "Instructions" of Maryland to her delegates, which were later read in Congress (May 21, 1779), recite:

> "We are convinced, policy and justice require, that a country unsettled at the commencement of this war, claimed by the British crown, and ceded to it by the treaty of Paris, if wrested from the common enemy by the blood and treasure of the thirteen States, should be considered as a common property, subject to be parcelled out by Congress into free, convenient and independent governments, in such manner and at such times as the wisdom of that assembly shall hereafter direct."

FOR A TIME THE STATE STOOD ALONE IN HER WISE COURSE

Knowing from boundary experiences with her neighbors (see page 196) the enmity that disputes about land engender, Maryland, though giving unsparingly of men and substance to the Continental armies, refused to sign the Articles of Confederation unless assured that the vacant western lands would be used to form new States and not to enrich enormously any individual State.

For a long time Maryland raised her voice alone; but gradually the other States were convinced of the fairness and wisdom of her stand and the necessity of the program she urged, if any lasting nation were to be the fruit of the Revolution. New York, Virginia, Massachusetts, and Connecticut generously ceded their territorial claims to the Nation.

But Maryland's clear-sighted and effective course had achieved something far greater than merely removing the cause of future strife between jealous Colonies; by her insistence on the creation of a national domain she welded the most effective bond that could have been devised for a lasting union. When peace came the thirteen States found themselves joint owners of this great territory, and their common interest in developing their joint property and parceling it out into new States held them together, when they might easily have drifted apart if they had had no such economic bond.

"Just as it was Massachusetts," says John Fiske, "that took the decisive step in bringing on the Revolutionary War when she threw the tea into Boston Harbor, so it was Maryland that, by leading the way toward the creation of a national domain, laid the cornerstone of the Federal Union."

Another distinguished historian writes: "Without *permanent territorial interests* Congress would have been, indeed, 'a shadow without the substance,' as Washington termed it, and the country 'one nation to-day and thirteen to-morrow,' as best suited the purposes of individual States."

To the illustrious Marylanders, John Hanson particularly, and to Charles Carroll and Daniel Carroll belong the credit of suggesting and successfully urging the policy that has changed the whole map of the United States and the whole course of our national life.

Ohio, Indiana, Michigan, Illinois, Wisconsin, and Minnesota are States in the American Union because of the practical sagacity of these men who gave direction to Maryland policies beneath the roof of this historical old statehouse.

The room where Washington surren-

Photograph by Jacob Gayer

THE ENTRANCE TO THE CHASE HOME IN ANNAPOLIS

The original owner, Samuel Chase (see page 164), vehemently resisted the Stamp Act and was a prominent member of the "Sons of Liberty" at Annapolis that broke open the public offices and destroyed the stamps, and burned the collector in effigy. This action he avowed and defended in a public letter to the authorities. Many years later, when Associate Justice of the Supreme Court of the United States, he expressed his opinion on political subjects so frankly that he was impeached by the House for meddling in politics while on the bench. The U. S. Senate discharged him after a trial which emphasized the purity of his judicial record and established the principle that judges shall refrain from partisan political speeches.

Photograph by Clifton Adams

THE COLONIAL STATEHOUSE AT ANNAPOLIS (SEE PAGES 154, 171)

Washington surrendered his commission in the old Legislative Hall, directly to the right of the portico.

dered his commission when Annapolis was temporarily the capital of the United States has been restored.

THE UNITED STATES NAVAL ACADEMY

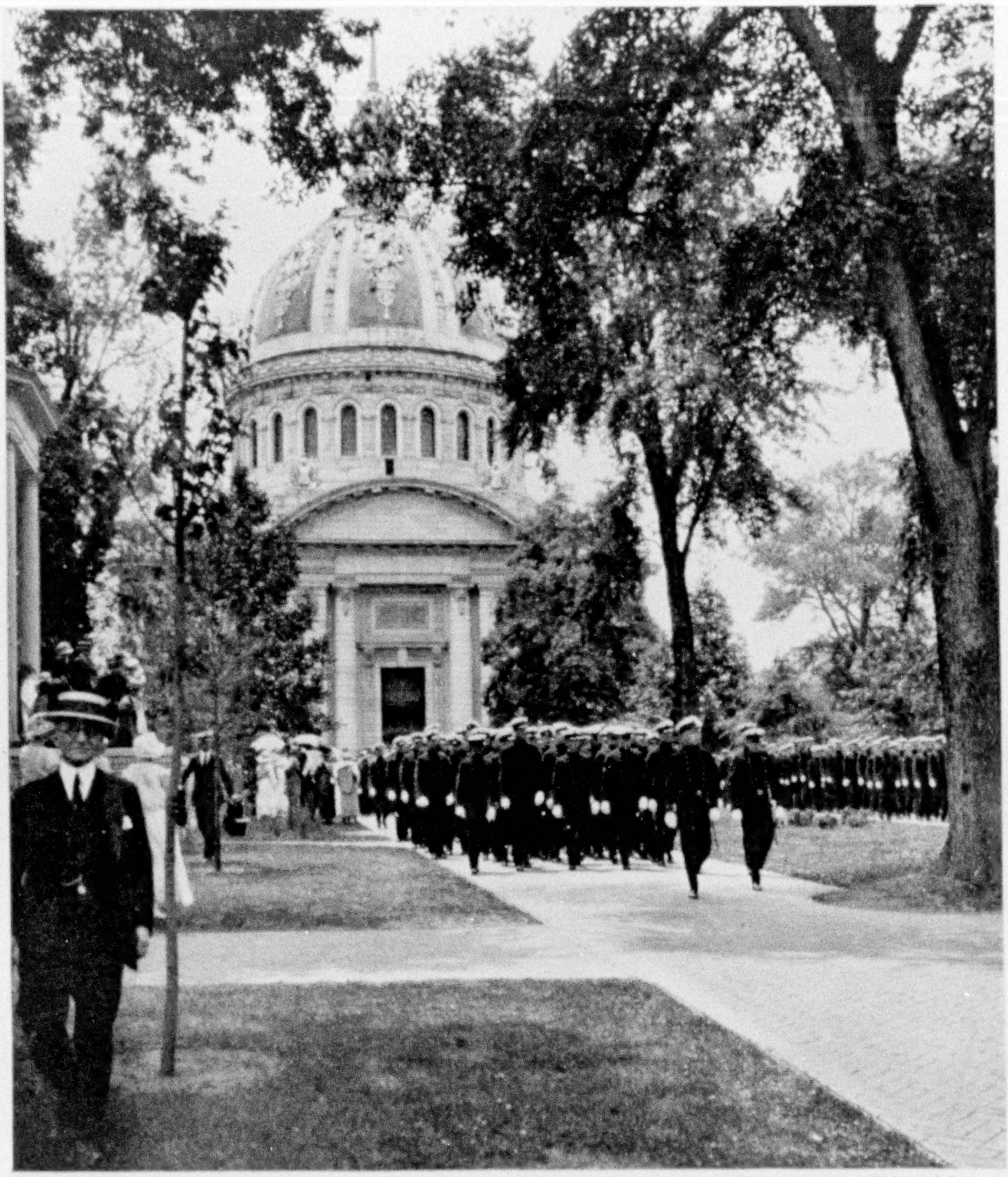
Fitting it was that his commission should be surrendered on Maryland soil, for it had been a Marylander, Thomas Johnson, delegate to the Continental Congress, who had the prescience to see in Washington the attributes that were destined to make him the Father of his Country, and who had nominated him at Philadelphia, June 15, 1775, for the task he was now laying down. Furthermore, it had been Maryland's staunch faith in him that helped to preserve his leadership in the dark days of the Revolution, when cabals arose in behalf of a change in commanders.

We leave the old statehouse with its memories, precious to every American, and wander across the way to an institution which holds a deep affection in our hearts—the United States Naval Academy. Situated on the tip of the little peninsula which it shares with the city of Annapolis, the Academy grounds, bounded on three sides by water, covered with a splendid turf, and ennobled by magnificent structures of white granite, make one of the finest aërial pictures in America.

Whether its graduates shall win their stars and their fame on the bridge, amid storms of shot and shell; their distinctions through diplomacy, or their honors by exploration, or at home, they may always be depended upon to reflect the training they receive in this historic institution, and to be worthy incarnations of the spirit of their country, in whatever rôle duty casts them.

BALTIMORE EPITOMIZES THE ROMANCE OF MODERN MARYLAND

One is reluctant to leave such a beautiful and rich-memoried city, but Baltimore



Photograph by Clifton Adams

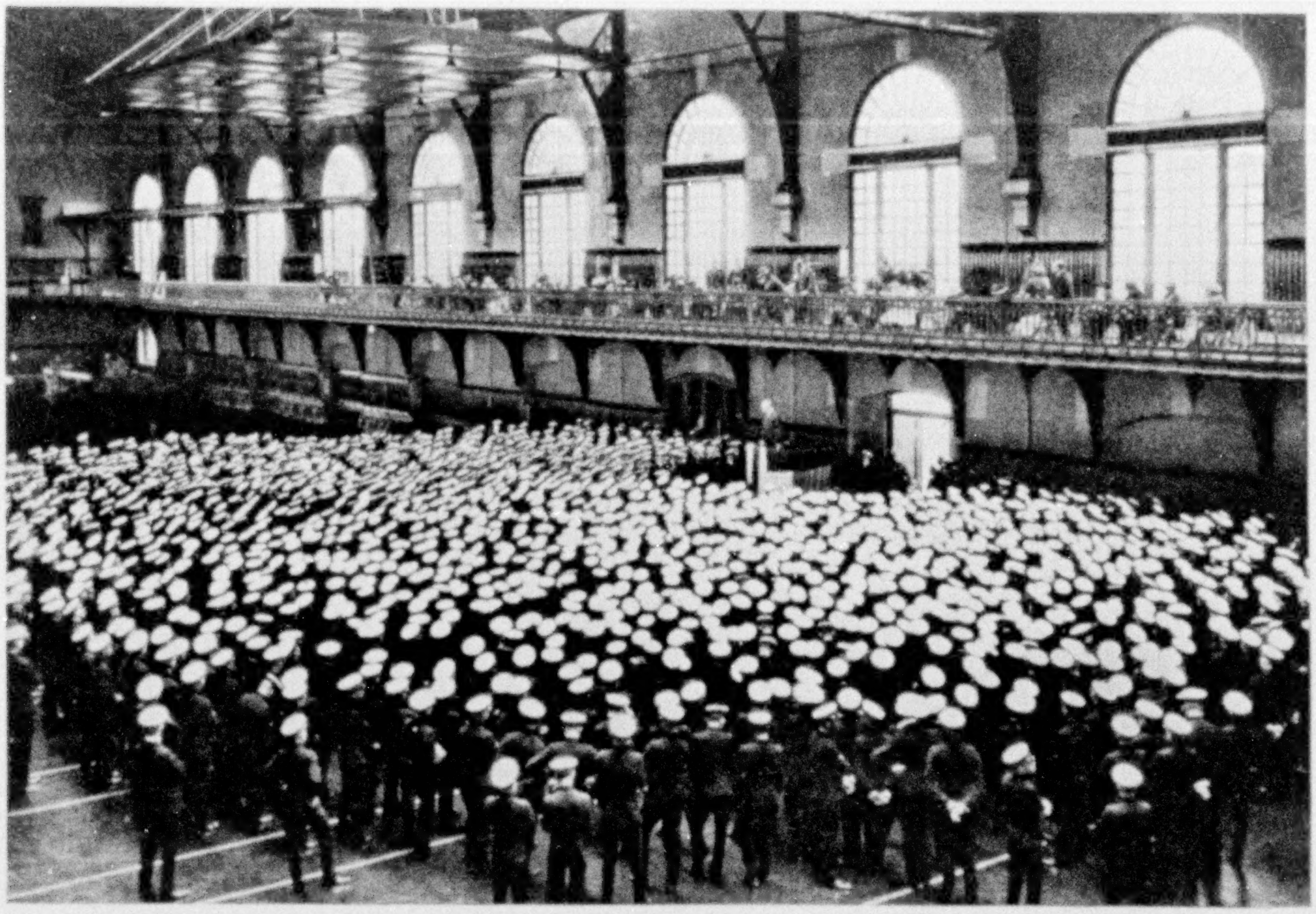
MIDSHIPMEN MARCHING FROM CHAPEL

The baccalaureate sermon is delivered the Sunday before commencement, which is known among the students as "Sob Sunday," because in the old days "the plebes" were supposed to sob at the departure of the graduating class. Friends, relatives, and sweethearts, especially of the graduating class, line the walks of the U. S. Naval Academy grounds as the midshipmen march past, resplendent in their full-dress uniforms.

is only 24 miles away, with a romantic story of modern Maryland to tell.

No other city in the country except New York has Baltimore's distinction, that of being, in population and wealth, more than half of its State. Baltimore is a monument to geographic location and to the initiative of its people.

The city's strategic location has been summed up in the observation that it is "the most western of the eastern ports and the most southern of the northern ports." By rail it is more than a hundred miles nearer Pittsburgh, Cleveland, Chicago, and St. Louis than is New York. This means a freight rate of 60 cents a ton lower than that to any other Atlantic port. In point of time, the depth of



Photograph by Clifton Adams

THE SECRETARY OF THE NAVY ADDRESSING MIDSHIPMEN IN THE ARMORY (DAHLGREN HALL) OF THE U. S. NAVAL ACADEMY

When foreign dignitaries visit the Naval Academy, after reviewing the regiment, they address the midshipmen from the rostrum in the middle distance. The King of the Belgians, the Prince of Wales, Marshals Foch and Joffre, and Admiral Beatty have spoken here.

Chesapeake Bay places Baltimore a day nearer deep water for the upper Mississippi Valley than any other city.

Even the tidewater favors it, for the Chesapeake and the Patapsco modify the average rise and fall to 14 inches, as compared to more than four and five feet in the harbors of its major shipping competitors

THE CITY WAS RECREATED IN A CRUCIBLE OF FIRE

Prior to 1904 Maryland's metropolis was a live, thriving city, situated on the border line that separates the North from the South, possessing most of the traditions of the latter section and many of the business qualities of the former. Though universally recognized as one of the important cities of the Nation, no one dreamed that it would soon aspire to become the New World's second city in foreign commerce.

Then came the terrible fire of 1904, which, burning for 30 hours, wiped out the business center of the city and caused a loss of $125,000,000. With its heart a mass of wreckage, the beholder seemed justified in believing that Baltimore could never "come back," and as for setting a new high-water mark of municipal achievement, that was unthinkable.

But through the alchemy of courage a dire calamity was transformed into a civic blessing.

No stranger can go to Baltimore to-day without catching something of this resolute city's spirit. Contrasting its situation in 1904, after the fire had finished its devastating work, with what one sees in 1927, it is hard to believe that such a transformation was possible. Nothing remains to remind one that there ever was a fire, except that the business district is built with a solidity and excellence seldom encountered in cities that have not suffered (see illustration, page 177).

The water front, the aggregate length of which is greater than the distance between Baltimore and Washington, affords

Photograph by Clifton Adams

THE MAIN LOBBY OF BANCROFT HALL, U. S. NAVAL ACADEMY

More than 2,400 midshipmen have been accommodated in the five "decks" of this building, which is probably the largest college dormitory in the world. It is named for the Secretary of the Navy who founded the Academy (see, also, pages 158 and 159).

Photograph by U. S. Army Air Corps

AN AIR VIEW OF THE BUSINESS DISTRICT OF BALTIMORE

The metropolis of Maryland shares with New York City the distinction of being the only cities in the United States having more than half the wealth and population of their respective States. The present business district of Baltimore has risen from the ashes of the old city destroyed by fire in 1904 (see text, page 175).

a panorama of industry. Here is the world's largest coal-handling pier and the Atlantic seaboard's most modern and extensive group of grain elevators, which can transfer a carload of grain either to bin or ship's hold in six minutes.

The largest tidewater steel plant in the United States reaches out to Chile and the West Indies, to Spain and Sweden, for the ores to be tempered by the coal which "can almost roll down by gravity" from mines less than 200 miles away. The largest copper refinery in the world sends ships to the seven seas to bring back crude ore, which enables this plant to produce one-fourth of all the refined copper output of this country.

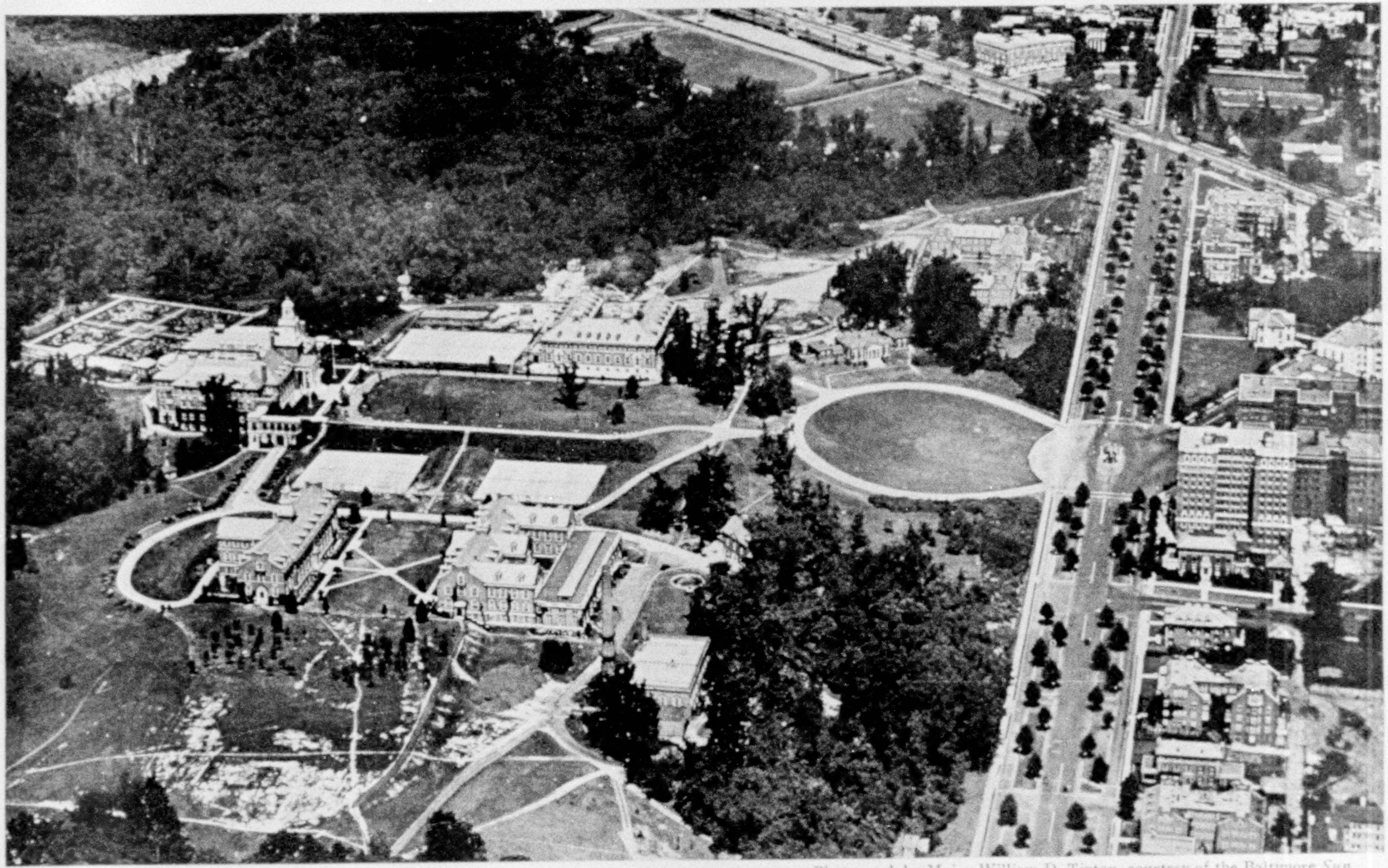
HOME OF THE BALTIMORE CLIPPER CONTINUES A GREAT SHIPBUILDING PORT

In keeping with the traditions of bygone years, when the Baltimore shipbuilders launched those gems of the marine architect's art, the Baltimore clippers, the Monumental City is America's foremost ship-repairing community.

Located in the heart of the fertilizer-using Atlantic seaboard, and with a fine, cheap haven for the nitrate-carrying tramp steamer, it is also natural that Baltimore should be America's greatest center of fertilizer manufacture.

Its output of tinware exceeds that of the States of New York and Pennsylvania together, it produces more hats than any other city, and leads them all in the manufacture of metal bottle caps. Likewise it excels every other city in the production of canned goods and piston rings. Even the old slat bonnet of a half century ago is still a product of Baltimore industry.

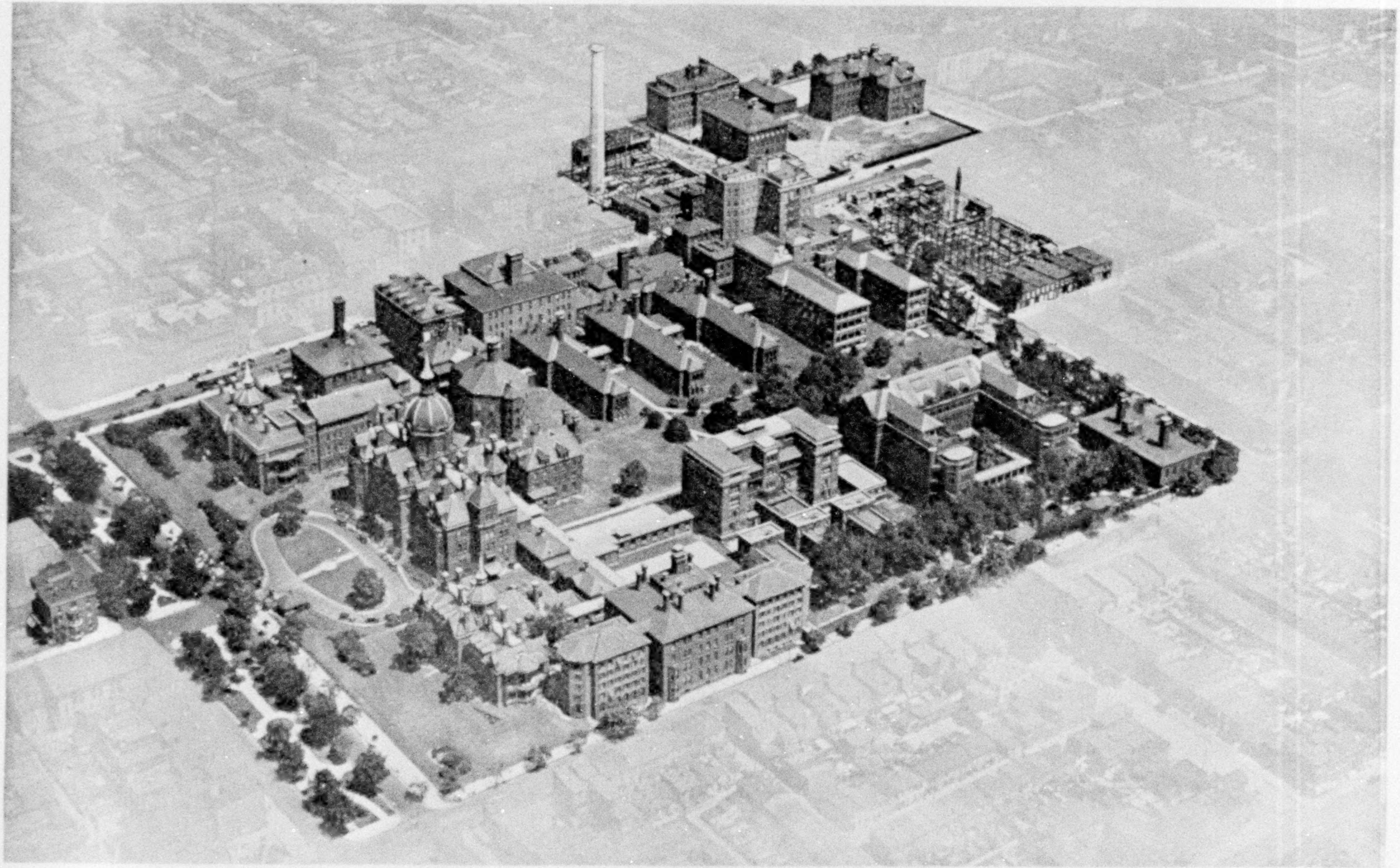
With upward of 2,000 commodities, ranging from pins to battleships, this enterprising metropolis has such a diversified



Photograph by Major William D. Tipton, courtesy of the Baltimore *Sun*

AIR VIEW OF JOHNS HOPKINS UNIVERSITY, BALTIMORE

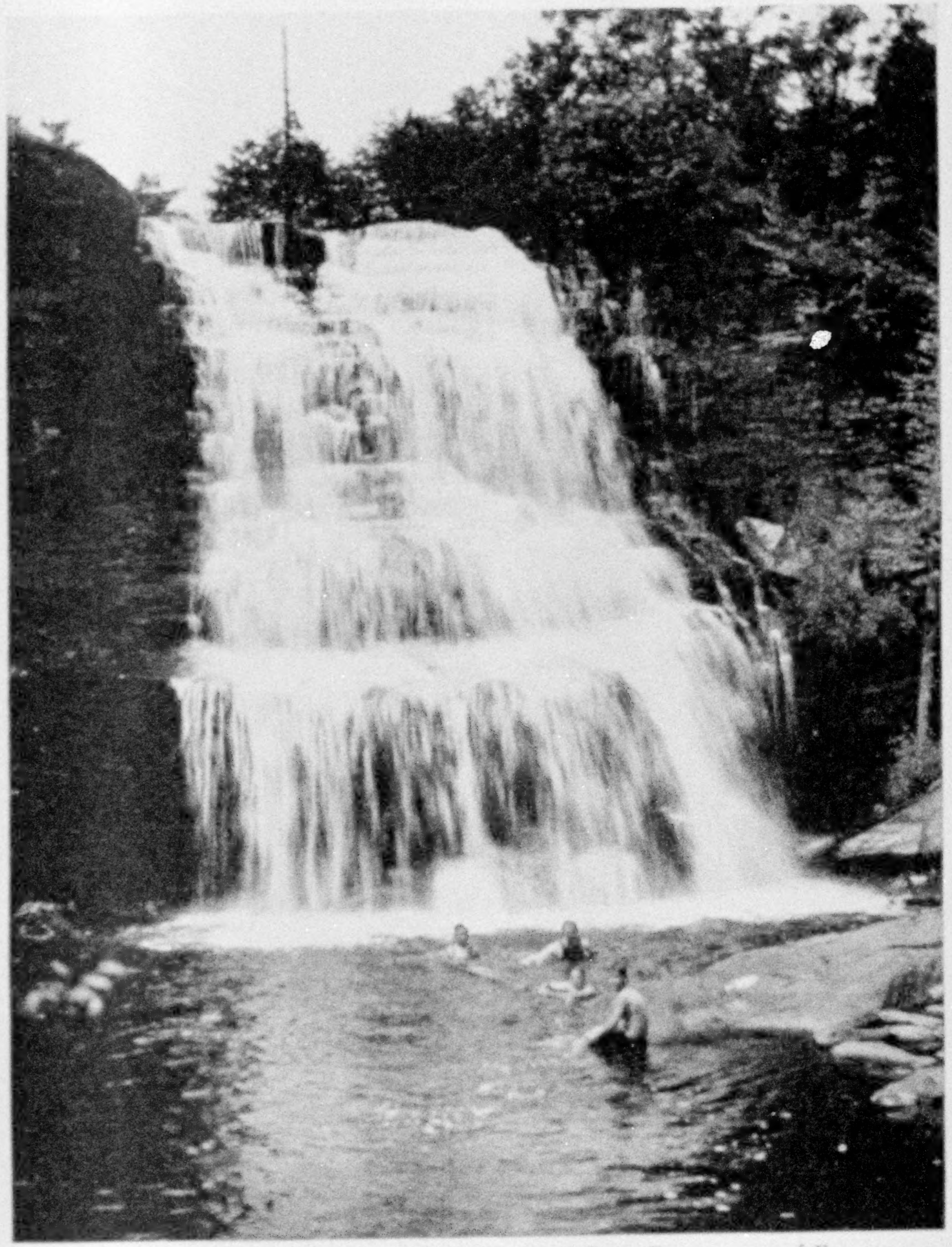
Gilman Hall, with the tower, is at the left, and the engineering buildings and laboratories before it in the quadrangle. Other edifices will be built where the tennis courts now stand. Above the circle, to the right of the group, is Charles Carroll's famous mansion, Carrollton, from which the architectural motif of the entire group has been taken. This historic house is now the Faculty Club.



Photograph by Major William D. Tipton, courtesy of President Frank Johnson Goodnow

A BALTIMORE MERCHANT DEVISED A MEMORIAL MORE MAGNIFICENT THAN THE MONUMENTAL PYRAMIDS OF THE PHARAOHS: THE JOHNS HOPKINS MEDICAL GROUP

Inspired leaders in medical research and teaching, competent practitioners, and devoted nurses trained in this institution have improved the conditions of life and ameliorated human suffering everywhere. Said Charles W. Eliot, President Emeritus of Harvard University, "The prodigious advancement of medical teaching which has resulted from the labors of the Johns Hopkins Faculty of Medicine is an achievement which must be counted one of superb beneficence."



Photograph courtesy of Maryland State Department of Forestry

THE FALLS OF MUDDY CREEK, NEAR OAKLAND

Photograph by Charles Martin

MOUNTAIN LAUREL IN BLOOM

industry that hard times, panics, and changes in trade demands do not bring the disaster that they do to some communities. And its financial institutions are as conservative as the proverbial French peasant.

JOHNS HOPKINS, NURSERY OF AMERICAN RESEARCH

Through Johns Hopkins University and Medical Schools and Hospital the city of Baltimore touches humanity everywhere. When the great, noble-minded Quaker banker and merchant whose name they bear gave his fortune for the founding of a hospital and the establishment of a university, he left it in the hands of far-visioned men.

America's universities at that time put their emphasis on training men for the professions. The Johns Hopkins trustees, guided by D. C. Gilman, saw that there was need for an institution which would specialize in research and the training of men for research work. They understood that civilization progresses only as it delves deeper into the mysteries of Nature.

So they built a university that should develop research and train men for its exacting tasks. And from that day America began to take its place as one of the world's leaders in the accumulation of new knowledge and its application to the needs of an expanding race. Johns Hopkins-trained men and women went out to the colleges, laboratories, and hospitals and started a new era in American research and medical teaching.

Here Rowland worked out the law of the mechanical equivalent of heat, without which modern engineering could not solve the problems it meets; standardized the ohm, an essential element in the wonderful development that has characterized the electrical industry; perfected his machine for ruling spectrum gratings, a fundamental piece of equipment in the researches that have led to our new knowledge of the structure of the universe and our new data upon the constitution of the atom.

Millions of human beings in every part of the world have been beneficiaries of Johns Hopkins-discovered adrenalin, which has stanched the flow of blood in operations, bolstered a weakening heart in pneumonia, brought breath to the bodies of newborn babies, stilled the torturing spasms of acute asthma, and rendered local anesthetics less dangerous.

Other millions are indebted to Johns Hopkins for the present operative methods in the surgery of the stomach, intestines, blood vessels, and gall bladder, and also for the methods used in operating for hernia, goiter, and cancer of the breast.

Rubber gloves were here first introduced in the operating room, as were silk sutures, two of the greatest aids to the safety of patients from operating-room infection.

DISCOVERIES THAT BENEFIT CIVILIZATION

Of the countless contributions to medical knowledge made by Johns Hopkins Medical Schools there may also be mentioned: the diagnosis of typhoid fever by blood culture; the first important studies in this country of amœbic dysentery; the discovery of the exact manner in which the muscles of the heart contract with a spiral motion to expel the blood—the basic action of the heartbeat—and discoveries of the physical and chemical reactions that stimulate and retard the heartbeat.

Experiments that showed the significance of blood pressure and led to the manufacture of instruments to measure the pressure of the blood; a reliable method for regional anesthesia; the basis for the treatment of tetany; the discovery of the gas-producing organism which was a common cause of gas gangrene following wounds in the World War; the development of genito-urinary surgery for women; pioneer researches in the application of radium to the cure of disease; effective leadership in educating the public to methods that prevent disease; and a long series of mercurial compounds, such as mercurochrome, an antiseptic used in the treatment of blood poisoning, and many other disorders.

Johns Hopkins Medical School yields only to Michigan University as the first medical school in the world to admit women to its classes and to accord them all the privileges that men students enjoy.

More than 2,000 doctors of medicine and 1,500 graduates of the School of Nurses have gone from this glorious institution to every part of the world, spurred with its ideals "to make life longer, happier, and more effective."

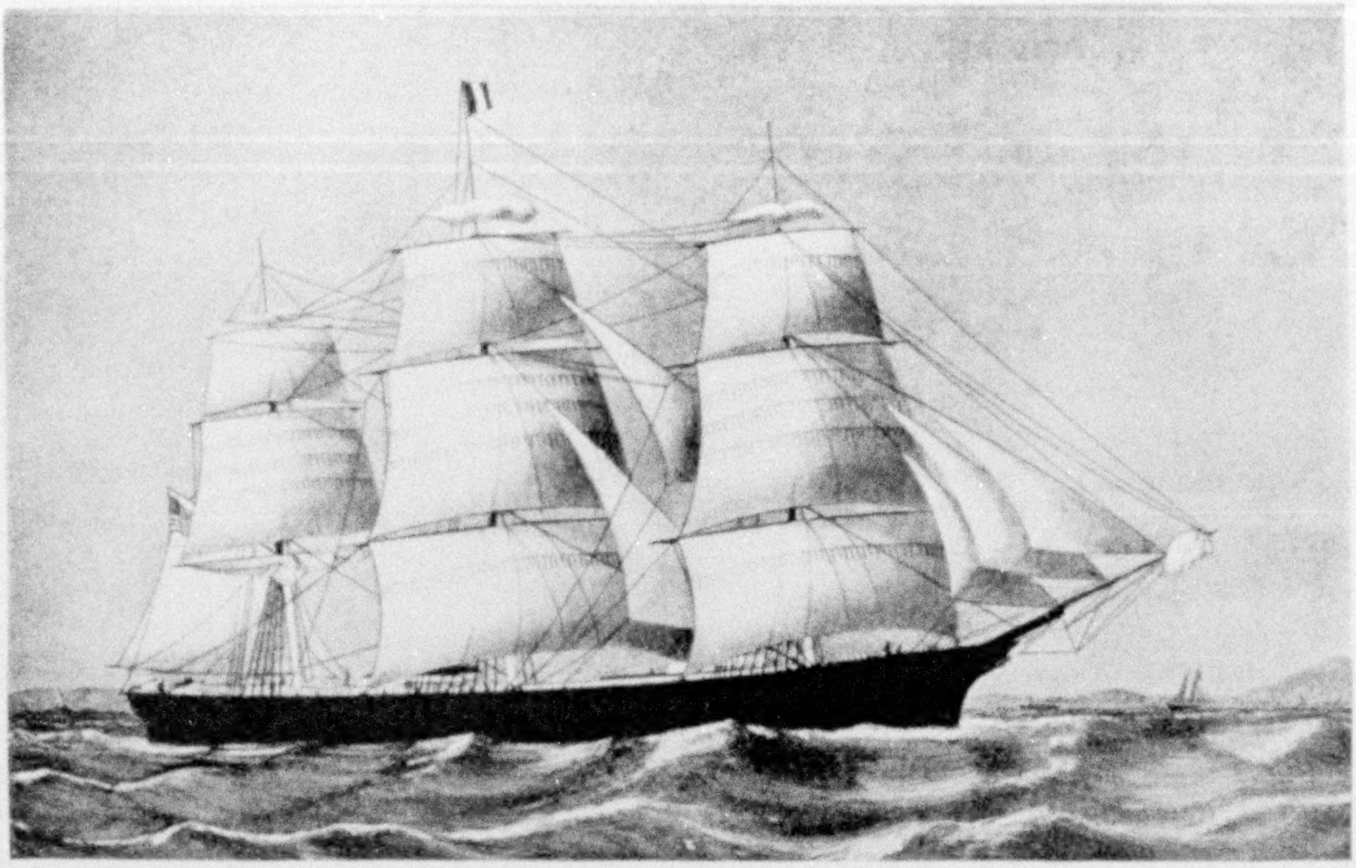


Illustration from Swepson Earle's book, "The Chesapeake Bay Country"

A BALTIMORE CLIPPER, THE TYPE OF SAILING CRAFT THAT BROUGHT FAME TO MARYLAND SHIPBUILDERS: THE "CARRIE DOVE," OFF LANDS END, ENGLAND

THE FIRST RAILWAY PASSENGER AND FREIGHT STATION IN AMERICA (SEE PAGE 195)

This building was also America's first telegraph station. Here was received Samuel F. B. Morse's first public message, "What hath God wrought," sent from the United States Capitol over the first telegraph line in America, which had been constructed by congressional appropriation, from Washington to Baltimore. The first political news transmitted by telegraph, the proceedings of the Democratic Convention in Baltimore (1844), was sent from this building, which is still in service, on Poppleton Street, south of Pratt Street, Baltimore.

Photograph by Pacific and Atlantic Photos, Inc.

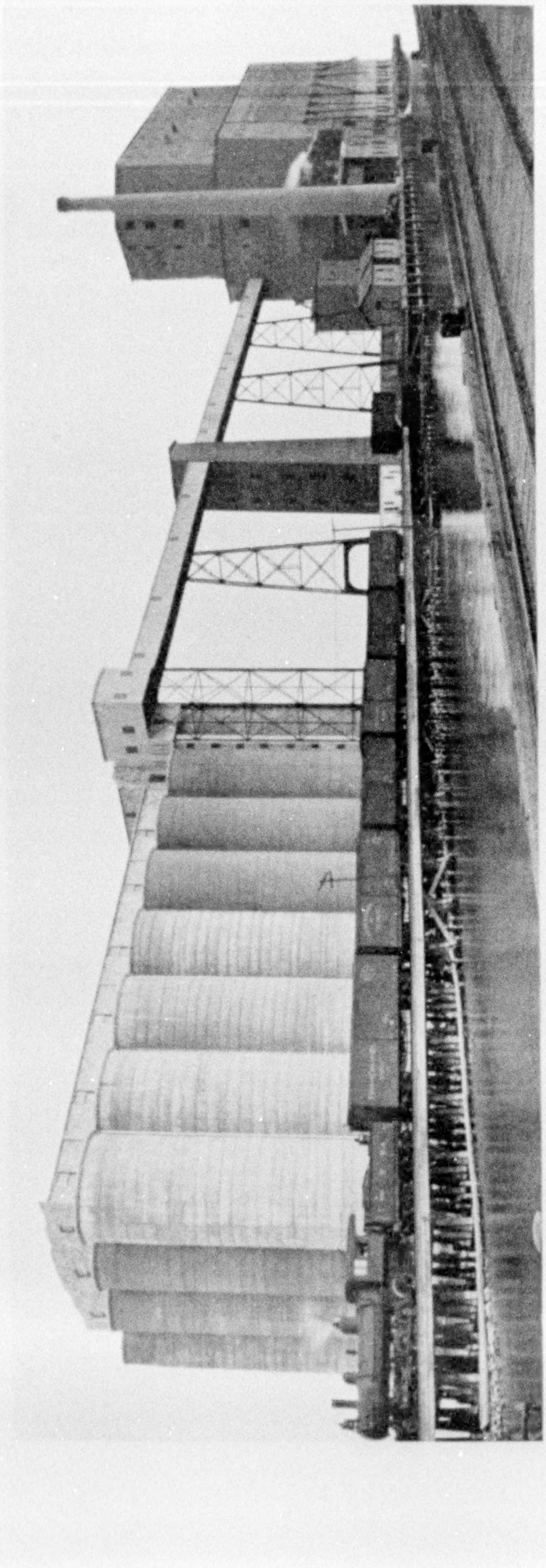
WHAT TIME O'DAY IS IT IN TIMBUKTU?

This youngster can read not only the time in this country, but, with the use of the unique dial which has been set up in Druid Hill Park, Baltimore, can tell time in all the principal cities of the world where the sun is also shining. The dials in shadow represent cities in the darkness of night.

In other fields Johns Hopkins has added to its civilization-serving record. Remsen's discovery of saccharin, a coal-tar derivative five hundred times sweeter than sugar, has blessed hundreds of thousands of diabetics; Morse's discovery of the copper-oxide process of removing sulphur from crude oil has recast the petroleum industry; Burton's researches on the problem of cracking gasoline has multiplied our potential gasoline supply eightfold; Frazer's catalyst for transforming insidious and deadly carbon monoxide into harmless carbonic-acid gas has removed one stalking form of death from every American battleship and submarine.

Busy with the present, Baltimore, nevertheless, possesses many splendid parks, museums and galleries, and many landmarks of a rich past that one likes to visit.

Near the Washington Monument stands the white marble building of Peabody Institute, memorial of the wise benefactions of George Peabody, merchant prince and banker, who laid the foundations of his vast fortune in Baltimore.



ONE OF THE IMMENSE GRAIN ELEVATORS AND STORAGE BINS AT BALTIMORE

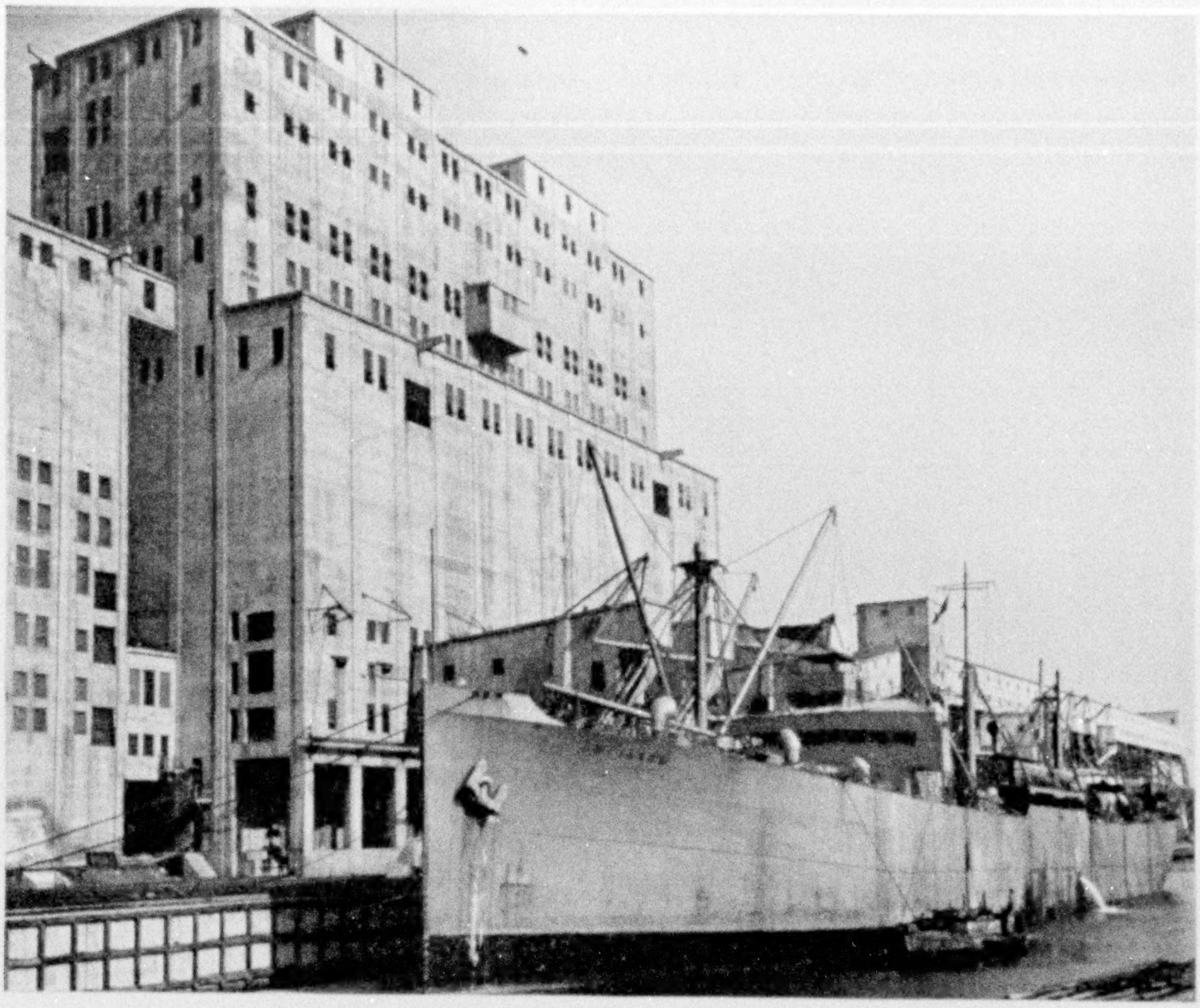
Not far away is the modest home of the Maryland Historical Society, which is by law the custodian for the State of its colonial and early official archives. A priceless collection of manuscripts, letters, paintings and early Americana is admirably guarded by this Society, which also issues monographs of great value.

AMERICA'S FIRST CITY TO BE LIGHTED BY GAS

Baltimore was the first American city to be lighted by gas (1821). Here, too, was constructed the first steam vessel built entirely of iron, the first iron building, the first armor plate, the first linotype machine (which sets the type for your GEOGRAPHIC MAGAZINE), and the first electric tunnel.

Likewise, this progressive town erected the first American statues to Christopher Columbus and George Washington, organized the first railroad company, the Baltimore and Ohio; operated the first telegraph line, manufactured the first metal writing pens, used the first revolving-cylinder printing press, made the first carbureted hydrogen illuminating gas, set up the first merchant's exchange, established the first dental college, created the first bonding company, imported the first Peruvian guano, launched the first submarine boat, and opened the first dairy lunch.

From Baltimore the open road lures one around the head of Chesapeake Bay and down the Eastern Shore. Aberdeen, with its 35,000-acre reservation for testing the artillery of the United States and its plants for making smokeless powder, and Edgewood Arsenal are passed en route.



© Keystone View Company

LOADING A VESSEL WITH GRAIN: BALTIMORE

In ten hours this plant can receive 400 cars of grain, deliver 1,800,000 bushels to five ships, clean 600,000 bushels, and dry 40,000—all under the direction of one man, the "grain dispatcher." The elevator has a storage capacity of about 5,000,000 bushels of grain. The work is so simplified in this great elevator that the grain can be taken from the cars to the scales, thence to the vessel, without going to the bins; or the loading can be done from the bins. The grain is carried on immense belt conveyors.

Crossing the Susquehanna by the only toll bridge remaining in Maryland, we pass northeast and come to Elkton. And here begins the Eastern Shore.

A VERDANT LANDSCAPE

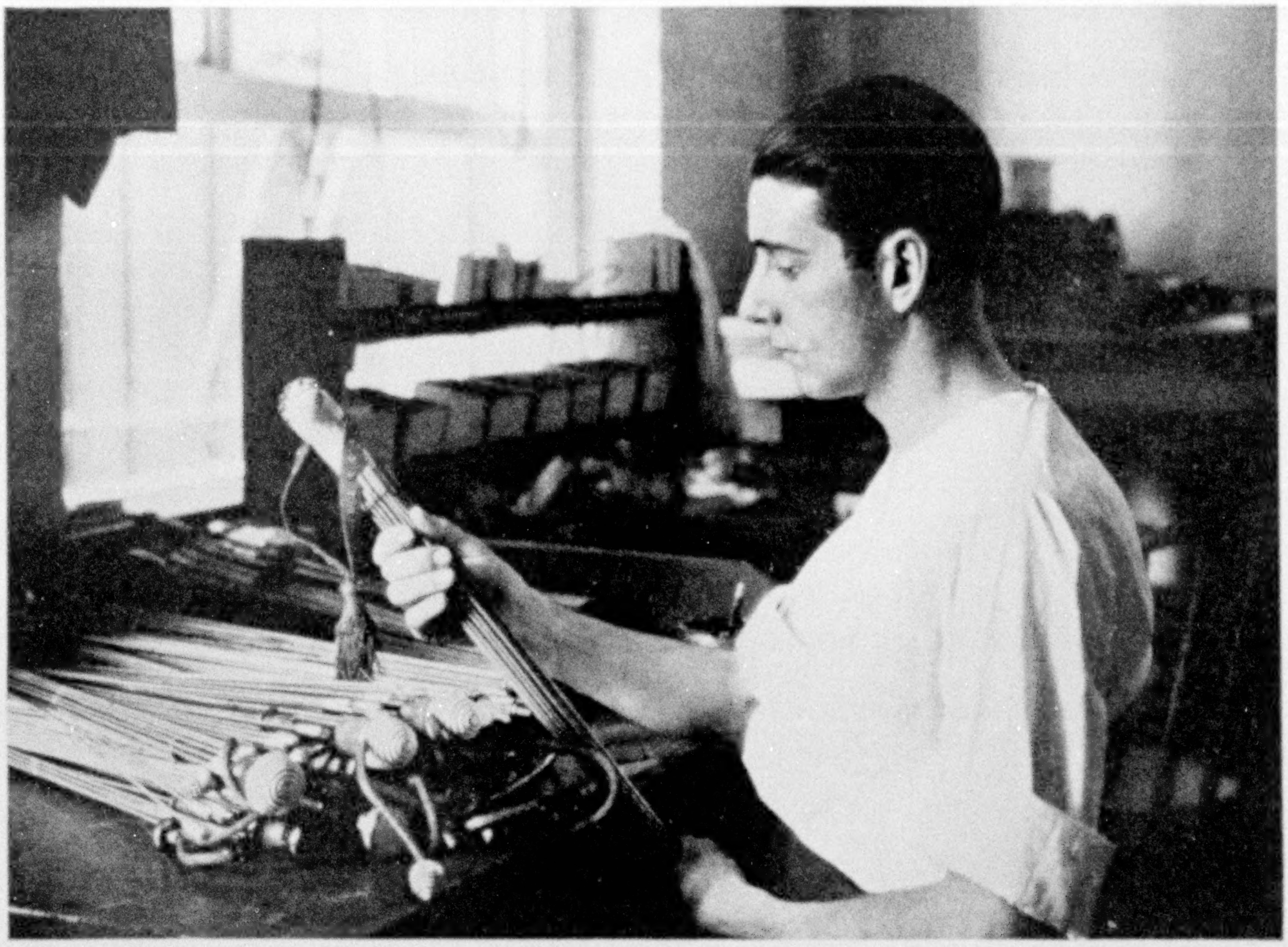
From the blue hills of Cecil to the level plains of Worcester and Somerset, the nine counties that comprise this magnificent province of the Old Line State seem to vie with one another in the marshaling of beautiful landscapes, splendid river and bay vistas, and charming towns.

The forests are filled with noble trees, the roadside banks are covered with sod, and the farms wear an air of contentment and productivity equaled in few of the world's farming communities.

Down on the Manokin River, in Somerset County, lives a farmer who has found the secret of making farming a profitable and pleasant vocation.

"I find that I can do anything here," said he, in telling of his experience, "that I could do on my farm in Illinois and a lot of things I couldn't. I keep both cows and hogs, using portable fences to inclose their pastures, and I can pasture them twelve months a year, something no Illinois hog farmer or Wisconsin dairyman could ever do. I plant rye, so that it will be a foot high by the first of January, and it furnishes pasture until the first alfalfa comes, in the spring."

He has a gas-engine mill in which he grinds both the bean and the hay of his



Photograph by Edwin L. Wisherd

MANUFACTURING UMBRELLAS

Placing the heads on umbrellas before covering. The first umbrella to reach America was brought to Baltimore and it was first carried in that city. The first factory for making umbrellas was established there and is still in operation.

soy-bean crop into meal for his stock, also his alfalfa and crimson clover, with which to supplement his winter pastures.

Eight months out of the year he lives in a substantial town house and spends the other four in the fine old mansion on the farm. On one side of the big oak-studded lawn is a small house, used as a playhouse by his children, and on the other side a duplicate, in which he has his offices.

On the wall in the latter is a plat of his farm, showing every field, and a card thumbtacked thereon shows what is in each particular field to-day. As he decides what he will have there for his next crop, whether it be pigs or potatoes, clover or tomatoes, he puts up a second card of another color.

To keep his land well fed, he raises a crop of crimson clover or soy beans, producing perhaps three tons to the acre. With a giant disk harrow, drawn by one of the heaviest farm tractors, he cuts this up, and then with big plows, also drawn by heavy tractors, he turns it under. Three tons of humus to the acre! Maybe that doesn't make the land fat and the crop yield big!

MARKETS HIS PRODUCE DIRECT TO CITY CONSUMER

Marketing? He has solved that, too. When his produce begins to come in, he loads a high-speed truck and starts it to New York at 2 o'clock in the afternoon; and, although it is sent out less than 30 miles north of the Virginia line, he has it on the New York market early next morning.

The driver starts back immediately, arriving in the fields in time to have the truck loaded by 6 o'clock. Another driver now takes it and is on the road for Philadelphia, reaching the early market there next morning. This man, in turn, comes back in time to get the truck loaded by 2 o'clock and on the road to New York again, with a fresh driver at the wheel.

© Elmendorf from Galloway

ALONG THE LUMBER DOCKS OF BALTIMORE

In this way the owner makes six markets a week with one truck—three in New York and three in Philadelphia.

THE DELIGHTFUL TOWNS OF THE EASTERN SHORE

"Delmarva" is a term that may not mean much to the average reader, but it is a name to conjure with on the Eastern Shore. The grants of kings and the acts of legislatures distributed this splendid peninsula among three States—Del(aware), Mar(yland), V(irgini)a; Del-mar-va. But latterly the people of the peninsula have awakened to the fact that while politically they are disunited, economically and geographically they are bound together.

And so they have pooled their interests and formed an economic alliance in which State lines are entirely forgotten. They foresee that their marvelously mild climate for such a high latitude, their splendidly productive soil of sand and loam, so close to the major cities of the East, and their perfect system of highways, coupled with their fine navigable rivers, are destined to make the Delmarva Peninsula the market garden of the Atlantic seaboard.

The real-estate speculator is advised that he is not wanted, but those who come to share in the task of making Delmarva able to feed the ever-growing cities of the seaboard will be received with open arms. Dalmarva proposes to solve the producing problem by teaching farmers how to grow profitable crops; the labor problem by bringing in light, clean industries that will give the harvest population employment for the remainder of the year; the market problem by taking their products to the market instead of having the market buyers come to them.

The towns and cities of the Eastern Shore are, as a class, among the most attractive in America. A picturesque combination of quaintness and modernity characterizes them; their streets are, almost without exception, lined with beautiful trees, and nearly every building that is not of brick or stone is painted white.

Most of these communities are located on tidal rivers, whose blue waters add to the beauty of their setting.

Elkton, "the head of Elk" during the days of our two wars with England;

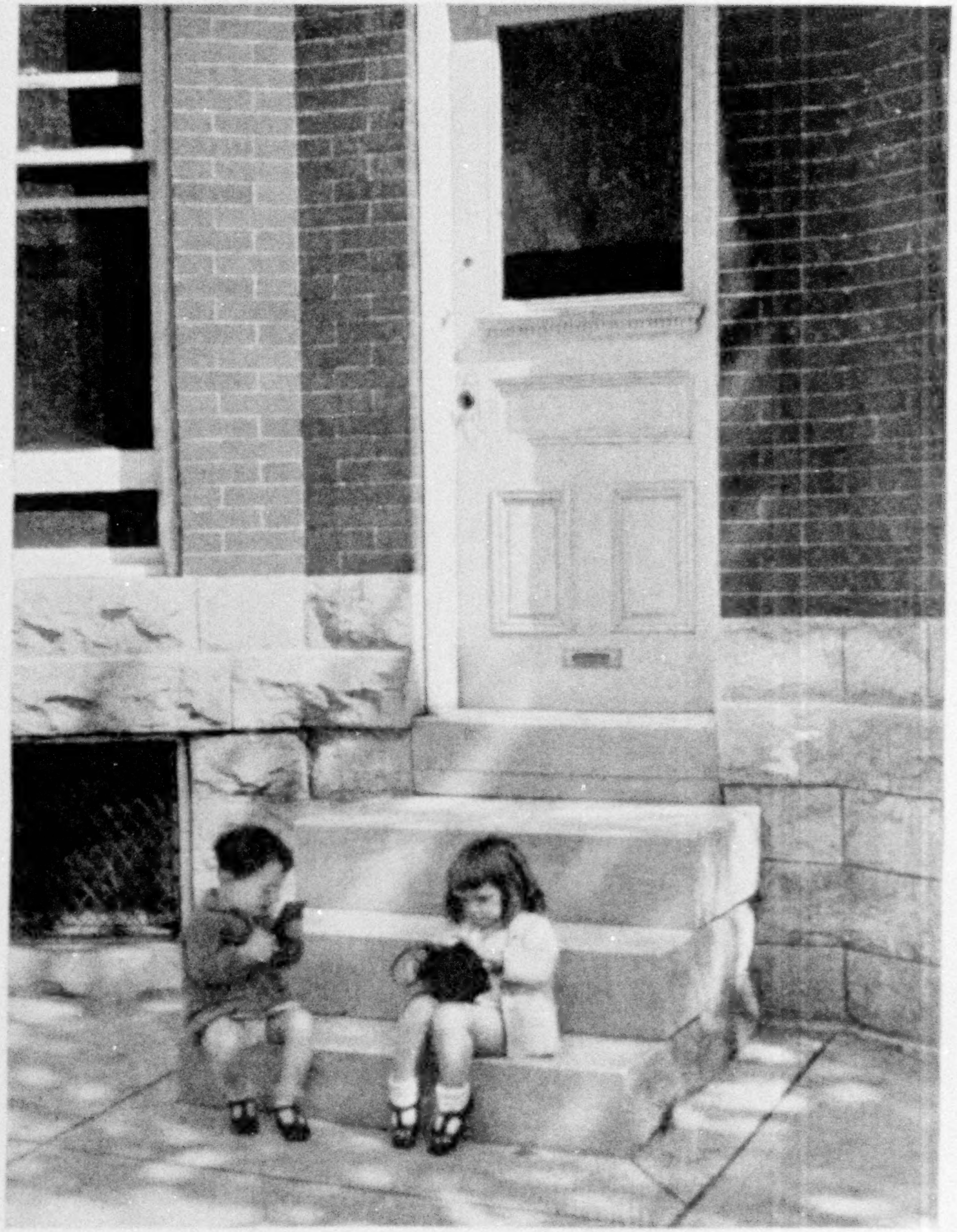
Photograph by Hughes Company

A RESIDENTIAL STREET IN BALTIMORE: EUTAW PLACE

In this city of miles and miles of "row" houses built to the sidewalks, the kind and condition of the inevitable three or four steps leading to the front door tell much about the household within. A family in good standing scrubs its steps practically every day. If it is not well-to-do, it has wooden steps; if it has attained some prosperity, it has ordinary stone steps; if it is well-to-do, it has white marble steps, like the rows in this picture.

Photograph by Jacob Gayer

THE KNOCKER ON A COLONIAL DOOR: ANNAPOLIS



Photograph by William D. Boutwell

PRINKING ON BALTIMORE'S INEVITABLE STEPS

It was in Baltimore that the conference of Methodist societies organized the Methodist Episcopal Church, Christmas, 1784, and elected Francis Asbury, who was the father of Methodism in America, the first Bishop of the Methodist Episcopal Church in the United States.

Five years later a Marylander, the Rev. John Carroll, was appointed Bishop of Baltimore, the first Roman Catholic Bishop in the United States. This distinguished prelate and statesman founded Georgetown College on its imposing eminence overlooking the Potomac River (1789). John Carroll was the cousin of Charles Carroll (see pages 154, 171, 194-195) and brother of Daniel Carroll, member of the Continental Congress (see pages 171, 211).

Photograph from John Oliver La Gorce

THE TERRACED GARDEN AND TENNIS COURT AT GLENELG MANOR, NEAR ELLICOTT CITY

The country home of the Lowndes family, which has been connected with the development of Maryland since colonial days.

Chesapeake City, the western gateway of the Chesapeake & Delaware Canal; Cecilton, successor to "ye towne at Captain Johns Creek"; Frenchtown and Georgetown, on the opposite bluffs of Sassafras River and connected by a long drawbridge; Betterton, on the oak-crowned hills at the mouth of the Sassafras; Chestertown, laid out in 1706, military base during the Revolutionary times, and port of entry to the Eastern Shore in colonial times—all these are jewels in the verdant landscape of the northern neck of the Eastern Shore.

Salisbury, at the crossroads of Delmarva, is the capital of the region. Berlin has the world's largest fruit-tree nursery and Crisfield is the crabman's capital.

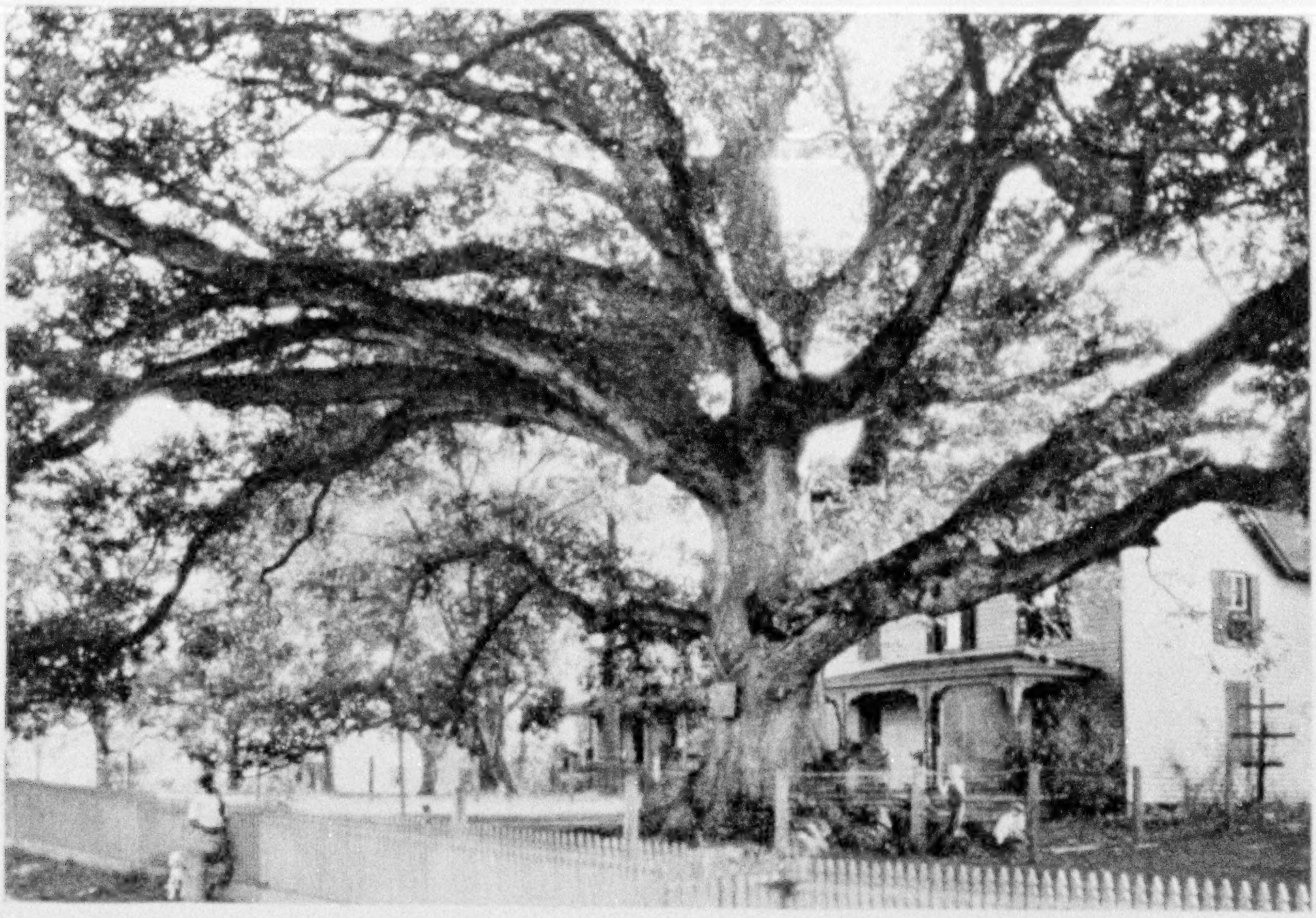
VOYAGING ON MARYLAND'S INLAND SEA

At Salisbury we ran our car aboard the little steamer en route to Baltimore at 8:30 in the morning. A full day's cruise down Maryland's second Wicomico River, up and down the Nanticoke, past Deal Island, through Tangier Sound and Hooper Strait, and thence up to Cambridge, on the Choptank, is too good to occur more than once a week. But it unfolds a magnificent panorama, unreels a fascinating motion picture of riverside, island, and bayside life, and makes one feel that fairylands are geographic facts.

Here are the greenest of marshes, there the finest of forests; now an aristocratic brick mansion is passed whose terraced lawns reach the river's brink, and now a fine old eighteenth-century church peeps out of its oak grove (see map supplement).

The last crate of strawberries aboard, the gangplank slides back on the landing, and our little army of irresponsible roustabouts find soft places on hard cargo for a short night's sleep, and the ship's prow is turned toward Baltimore.

As the moonlight gleams on the broad and beautiful Choptank and the range lights proclaim that ahead lies the American Mediterranean, whose Chesapeake & Delaware Canal is its Suez and whose fortifications at the Virginia Capes are its Gibraltar, one wonders that some steamship line has not planned a series of summer cruises on its historic waters.



Photograph courtesy of Maryland State Department of Forestry

THE WYE OAK, WYE MILLS IN TALBOT COUNTY, SAID TO BE 400 YEARS OLD

The diameter of this giant one foot from the ground is 18 feet, 3 inches; diameter 4½ feet from the ground, 6 feet, 5 inches; horizontal spread, 140½ feet; height, 89 feet.

Jamestown and St. Marys, the one the cradle of the Nation and the other the birthplace of religious freedom; Williamsburg and Annapolis, twin nurseries of liberty; Independence Hall and Yorktown, where America resolved to be free and won her independence; Washington and Mount Vernon, where the Father of His Country planned the world's imperial city that covets no territory, and where his immortal ashes lie entombed—

The Potomac and the James, the Patuxent and the Patapsco, the York and the Severn, the Rappahannock and the Occohannock, the two Wicomicos and the Sassafras, the Choptank and the Piankatank, the Nanticoke and the Pocomoke, America's close-at-hand Holland and her far-flung Venice—

What a region of national shrines, soul-quickening scenery, and recreational advantages for a real American cruise!

"By the dawn's early light" Baltimore appears again. In a trice our car is on the dock, and amid the beauties of an early May morning we swing around through Roland Park and the Green Spring Valley, where the people of the Monumental City show the world what can be done with suburban areas, and then begins another adventure—this time into the Piedmont plain, the valleys, and the mountains of upland Maryland.

ELLICOTT CITY IS FOUNDED

Ahead lies the most ancient Maryland, that part of the State which was above the waters of the Cambrian seas, as a part of the first American continent that the rocks record. It lies roughly between the Washington-Philadelphia line of the Baltimore and Ohio Railroad on the east and the channel of the Monocacy River on the west. Parrs Ridge is but a feeble reminder of the mighty mountains of primeval rock which formed the backbone of that continent. They appear, indeed, to have been rivals of the modern Himalayas in height, judged by the vast and rapid deposits of coarse sand that were swept from their beetling sides into the inland sea that broke on their western base.

On the eastern edge of this continent of the geological long ago stands Ellicott

SMILIN' THROUGH: SOUTHERN MARYLAND TOBACCO

BR'ER COON AND HIS JOCUND NEMESIS

Photographs by the National Photo Company

Photograph by Edwin L. Wisherd

UNLOADING TOMATOES AT A CANNING FACTORY: CAMBRIDGE, EASTERN SHORE OF MARYLAND

In the production of canned tomatoes Maryland leads all States, with an output valued at more than ten and a quarter million dollars. In spite of the smallness of its area, Maryland is outranked only by California and New York in the value of the products of its canning and preserving industry, and only by California in the number of wage-earners employed in this work.

Photograph by Edwin L. Wisherd

THE OLD ORANGERY AT "WYE HOUSE," ON THE EASTERN SHORE OF MARYLAND

It is probably one of the last survivors of these old glass houses for protecting orange trees in winter. The manorial lords of Maryland loved the luxuries of the table and provided means to gratify their tastes in all seasons. This estate is one of the most noted and historic manors of the Eastern Shore and has been in the possession of the Lloyd family for eight generations, since the original grant in 1650.

City, and beyond are the fertile wheat fields of Howard and Carroll counties. Perched on the slopes of the bluffs that border the Patapsco, this old town reminds one of many of the medieval upland towns of Europe.

Hither came three Quaker brothers by the name of Ellicott, some years before the Revolutionary War, from Bucks County, Pennsylvania, seeking broader fields for their mills. They were fascinated by the water power on the upper Patapsco, which was still in the roadless forest.

But there were no wheat fields of consequence within fifty miles. The planters were all growing tobacco and assured them that wheat would not prove a profitable crop.

However, the brothers would not be cast down. They finally appealed to that fine patriot, Charles Carroll, who owned the two great manors, "Carrollton" (see page 178) and "Doughoregan," to try growing wheat. He not only agreed to do that, but to help finance their mills.

Meanwhile the tobacco planters were pitying Carroll as the victim of half-crazy dreamers. While he grew his wheat, however, the Ellicott brothers were moving all their machinery and household goods to the Patapsco. They brought it in wagons to Philadelphia, thence by boats to New Castle, Delaware, where they put it into wagons again and hauled it to "Head of Elk," where they loaded it into boats again and shipped it to Elk Ridge Landing. Here it was put upon wagons, hauled to a spot a mile from the site, and then trundled in wheelbarrows the remainder of the distance.

By the time the mills were ready to operate, Carroll had thousands of bushels of wheat ready, and from that day to this the wheat fields of Howard and Carroll counties have been the pride of Maryland.

Finding their soil exhausted by incessant tobacco cropping, many of the planters were preparing to leave for Kentucky; but the Ellicotts imported plaster from

© National Photo Company

THE RACE TRACK AT LAUREL; PRINCE GEORGES COUNTY

Maryland was a pioneer in the development of the thoroughbred horse in America. Commissioned Governor for the third time in 1747, Samuel Ogle arrived once more in the province, bringing with him *Spark*, a celebrated stallion from the royal stud, presented by the Prince of Wales to Lord Baltimore and by him to Governor Ogle. The latter also brought *Queen Mab*, a mare of splendid lineage, and shortly succeeded in making the sport of kings the king of sports in Maryland. Later, *Selima* was imported, a racing mare that won, over the best thoroughbreds Virginia could muster, in a four-mile sweepstakes race at Gloucester Courthouse, Virginia.

Nova Scotia and with it converted their exhausted soil into good wheat land and saved Maryland some of its leading families.

AMERICA'S FIRST RAILROAD INCORPORATED BY MARYLAND

From Baltimore to Ellicott City the first American locomotive made regular runs. As had so often happened in other fields, the Maryland Legislature was the first to incorporate a steam railroad. In March, 1827, it gave a charter to the Baltimore and Ohio Railroad, authorizing a capital stock of $1,500,000 and providing for its ultimate extension to the Ohio River.

On July 4, 1828, Charles Carroll of Carrollton, the last survivor of that notable group of patriots who promulgated the Declaration of Independence, laid the cornerstone of the proposed railroad in the presence of one of the most enthusiastic and distinguished assemblages that had yet gathered in America.

On August 28, 1830, Peter Cooper, after a year of experimental work in per-

Photograph by Clifton Adams

A YOUNG STRAWBERRY PICKER OF THE EASTERN SHORE

fecting his locomotive, the *Tom Thumb*, whose boiler was about as big as a hot-water heater used with a modern kitchen range, decided to make his first passenger-carrying run to Ellicott City and return.

The 13 miles between terminals were negotiated in 75 minutes on the outbound trip and in 61 minutes on the return trip.

A few days later the advocates of horsepower challenged Cooper for a test between the two types of motive power.

This Cooper accepted, and two coach-loads of people started for Baltimore from Ellicott City, the one drawn by the *Tom Thumb* and the other by a big gray horse.

At the signal "go" the horse got under way more quickly and established a lead of about a quarter of a mile.

But gradually the *Tom Thumb* got up momentum, closed the gap, and took the lead from the lumbering horse.

Once in the lead, the *Tom Thumb* found itself in trouble. A leather band had slipped from a wheel and the engine lost momentum. In his furious effort to replace the belt, Cooper injured his hand and the horse won the race.

But Cooper had proved that a steam-drawn train could take the curves as well as one drawn by horses.

At the crossing of the Monocacy River a new geology greets one. From Baltimore to that river the motorist has traversed the backbone of the primeval American continent, the great belt of Archean rocks.

But at the Monocacy he comes to a beach line; for here was the shore of the ancient mid-American sea of which the Appalachian Mountains were once the bed—that ocean which covered vast accumulations of vegetable growth with silt and sand and shingle and thus preserved them for our use in the form of coal, in western Maryland, Pennsylvania, West Virginia, Ohio, Indiana, Illinois, etc. Staggeringly long ages have rolled by since that sea was expelled, first to make room for the rising Blue Ridge and then for the uplifting Alleghenies.

NEARLY SEVEN THOUSAND SQUARE MILES OF MARYLAND LOST

As one follows Mason and Dixon's Line on past Emmitsburg, where that noble society, the Sisters of Charity, had its American beginning, and Pen Mar,

Photograph by courtesy of U. S. Forest Service

PEELING WILLOWS

In the spring, when the sap begins to flow, the rods are pulled through the irons to break the bark, which, after being loosened, is peeled off by hand.

whose post office is in Maryland or Pennsylvania, depending on whether a Democrat or a Republican is postmaster, one is made to reflect on how much a lack of accurate geographic knowledge in the early days has cost the State of Maryland.

When the King of England issued to Lord Baltimore a patent for the Maryland palatinate he provided that its boundaries should start at Watkins Point (the mainland point south of Crisfield) on Chesapeake Bay, running due east to the Atlantic Ocean, then following the shore "unto that part of the Bay of Delaware on the north which lies under the fortieth parallel of north latitude." Thence the northern boundary was to follow the fortieth parallel "unto the true meridian of the first fountain of the Potomac." Then it was to follow that meridian to this "first fountain," and follow the farther bank of that river to its mouth at Chesapeake Bay, whence it should run across the Bay to the beginning, at Watkins Point.

Through ignorance of the position of the fortieth parallel and failure promptly to fix it, Maryland lost what is now the State of Delaware and, likewise, nearly 4,000 square miles of the finest lands in America to Pennsylvania; and through lack of thorough exploration to determine what actually was "the first fountain of the Potomac," she lost approximately half a million acres of the best land now embraced in northern West Virginia.

The fortieth parallel would take in all of the present site of Philadelphia nearly as far north as the boundary of Fairmount Park, while the actual "first fountain of the Potomac" is in Highland County, Virginia, draining into the south fork of that stream. The lands involved in this mistake include all of Grant and Mineral counties and parts of Hampshire, Hardy, Pendleton, Randolph, Tucker, and Preston, West Virginia, and a little sector of Highland County, Virginia.

On the whole, lack of accurate geographic knowledge cost Maryland nearly 4,250,000 acres of land, which now represent, with improvements, a wealth estimated at upward of ten billion dollars.

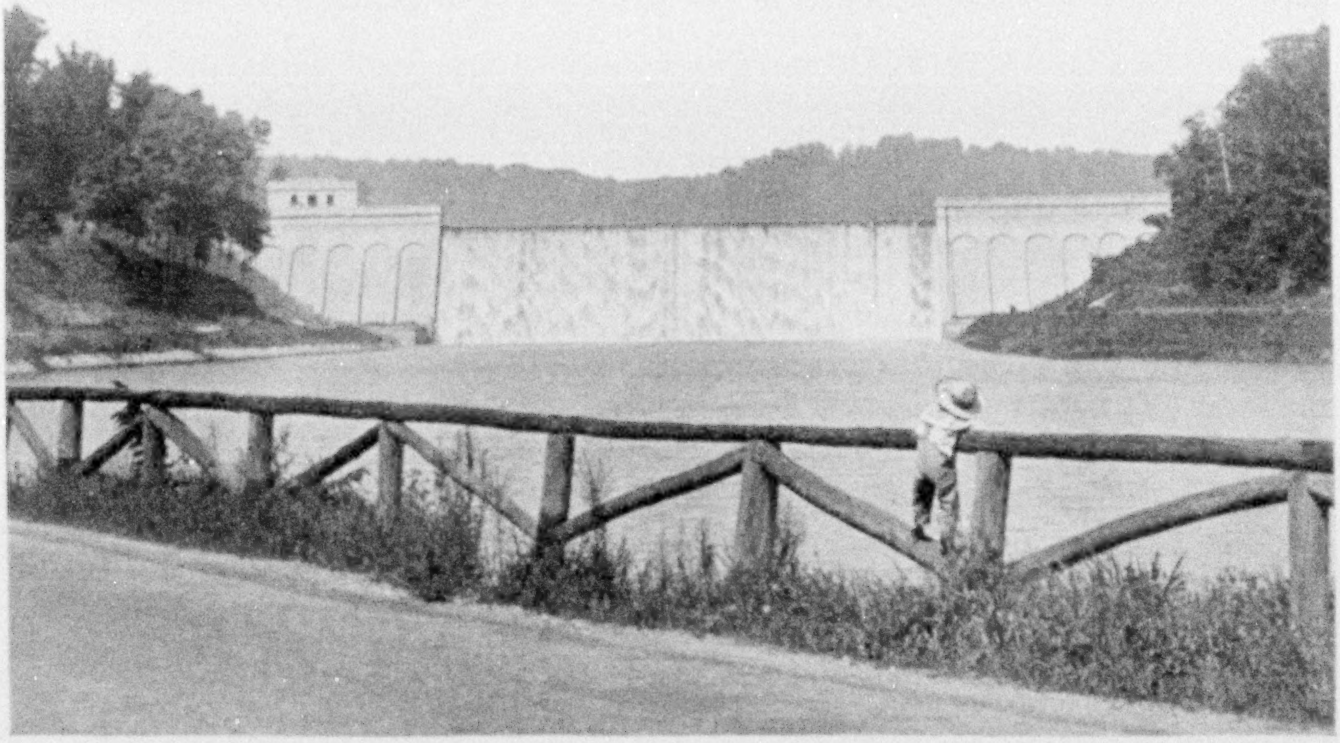
From Pen Mar, atop the Blue Ridge,

THE GIRLS' RIFLE TEAM OF THE UNIVERSITY OF MARYLAND

This team in 1926 won the National Team Championship, shooting with 20 universities. Note the telescopes used to study targets after fire. The ammunition used is .22 caliber.

THE MONUMENT TO JOHN O'NEILL, AT HAVRE DE GRACE

The inscription reads: "This cannon of the War of 1812 marks the site of the battery on Concord Point where JOHN O'NEILL served the guns single-handed during the British attack upon Havre de Grace, May 3, 1813, until disabled and captured. He was relieved from the British frigate *Maidstone* through the intercession of his young daughter, Matilda, to whom Admiral Cockburn gave his gold-mounted snuffbox in token of her heroism. As a tribute to the gallant conduct of her father, the citizens of Philadelphia presented a handsome sword."



Photograph by Nelson Edwards

LOCH RAVEN DAM ON GUNPOWDER RIVER, BALTIMORE COUNTY

The city of Baltimore gets its water supply from this watercourse. In a recent extension of the system two small villages were removed from the site of the enlarged reservoir. The water is carried for seven miles through a rock tunnel 12 feet in diameter. The ultimate capacity of the reservoir is to be twenty-two billion gallons.

Photograph courtesy of U. S. Department of Agriculture

A BOYS' PIG CLUB OF MARYLAND

MARYLAND WATERMELONS FOR NORTHERN MARKETS

Photographs by Edwin L. Wisherd

TAKING ON A CARGO OF WATERMELONS AT SALISBURY FOR BALTIMORE

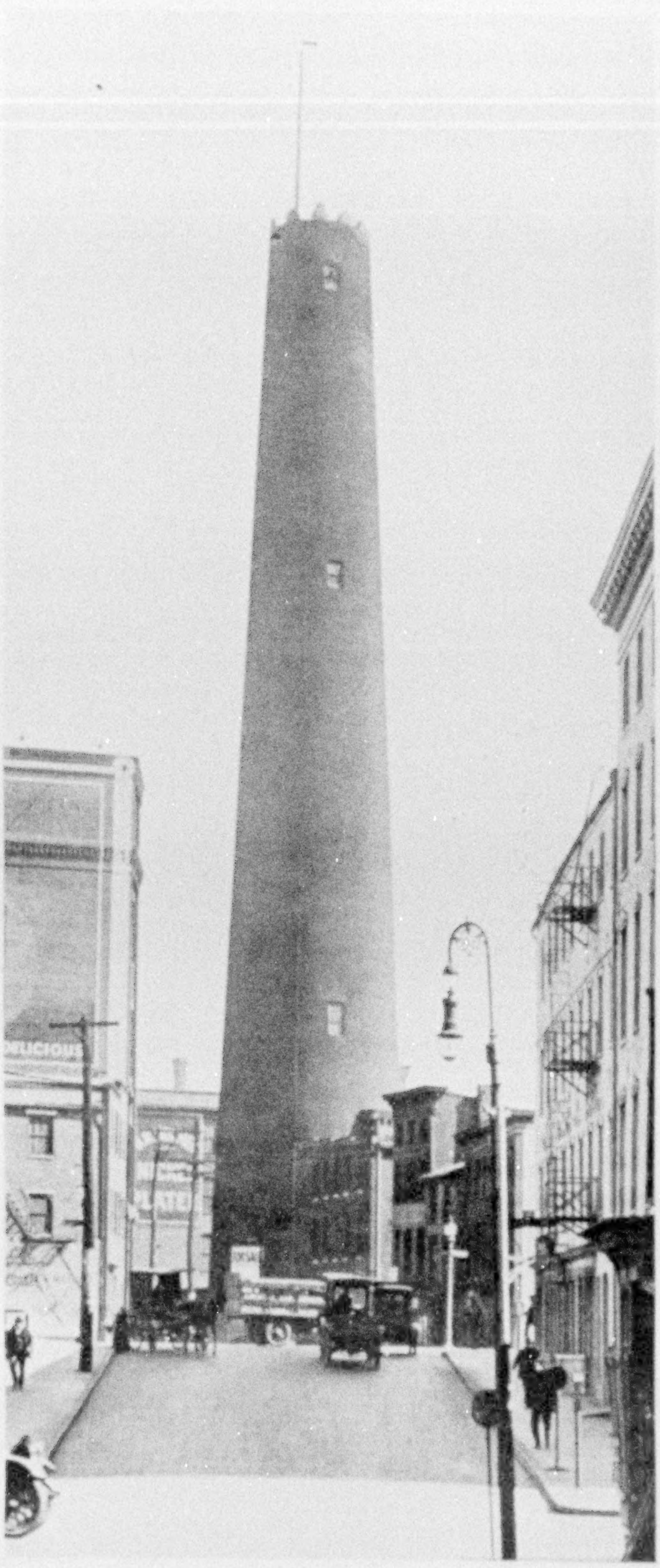
one looks across the Cumberland Valley — a magnificent mosaic wrought out of field and forest, town and country, girt about by mountains and hills. In the haze in the distance rises Hagerstown, Maryland's third city, home of the largest pipe-organ factory in the world, and famous for its bicycles and incubators. Its fine residence streets remind the visitor of the fashionable avenues of Baltimore and Washington.

A few miles to the south of Hagerstown is the battle field of Antietam, where more soldiers gave their lives in a single day than in any other engagement of the Civil War. Next to Gettysburg, it is the best-marked battle field in America, and, aided by monuments and markers, one may trace the events of the sanguinary struggle between the Army of Northern Virginia and the Army of the Potomac.

AMONG MOUNTAINS WHERE YOUNG WASHINGTON SOUGHT ADVENTURES

In the heart of the Alleghenies lie Oakland, Deer Park, and Mountain Lake Park. Northward stretches a fine State highway, which bridges a new and beautiful artificial lake whose irregular shore line is 27 miles long. Having left Southern Maryland, with its dogwood abloom in the greatest luxuriance; the Eastern Shore, with its early strawberries already moving to market, and the Hagerstown valley, with its apple blossoms at their best, one finds here on the mountains the first feeble indications of spring. Only a few tiny leaflets have dared to peep out.

To these mountains, George Washington, seeking adventure, came as a youth of 17 on a surveying expedition, and was entertained by the savage sports of an Indian war party at the home of Colonel Thomas Cresap, Mary-



Photograph courtesy of Baltimore *Sun*

THE OLD SHOT TOWER IN BALTIMORE

In the past shot were manufactured by dropping slender streams of molten lead from high towers into wells of water at the bottom. As these streams descended the metal formed into spherical droplets and cooled when striking the water. The molten metal was poured into colanderlike basins, the size of the holes determining the size of the streams, and, therefore, of the shot.

Photograph by Gilbert Grosvenor

A COUNTRYSIDE IN MARYLAND

Wild Acres, the author's country home in Montgomery County, Maryland, is credited by the U. S. Department of Agriculture as having the densest bird population anywhere recorded, 135 pairs of 24 different species nesting in five acres adjacent to the house.

land's most celebrated frontiersman, near Cumberland.

It was here, too, that Washington, returning at the age of 22 from his first fight, the surprise and capture of Jumonville's party, declared that there was "something *charming* in the sound of whistling bullets," a remark which he denounced in after years as the ejaculation of a "*very* young man."

At the summit of Keysers Ridge the Oakland Highway joins the old National Pike, and if you love mountain motoring the route to Frederick will bring you cheer. There is a fourteen-mile grade between the top of Big Savage and Cumberland, with a 2,200-foot descent. From Cumberland to Hagerstown the aggregate climb over the six mountains would reach the tops of most of the passes in the Rockies from their eastern base. For many miles, you traverse fragrant forests, carpeted in spring with flowering laurel, azalia, and violets and decorated in fall with gorgeous foliage (see map supplement).

Cumberland is Maryland's second city. Situated at the eastern edge of the Western Maryland coal region, where cheap power, contiguous raw material, and converging railways make an ideal location for a busy manufacturing center, it is the neck of the traffic bottle through which a busy commerce moves out of the eastern part of the Mississippi Valley into the seaboard cities.

George Washington foresaw, with his almost uncanny power to anticipate the future, that a great trade would pass through Cumberland, and labored dili-

Photograph by Clifton Adams

THE "BLOODY LANE," NEAR THE CENTER OF THE ANTIETAM BATTLE FIELD

It was only after fearful slaughter here that the Confederate troops were driven out, leaving their dead piled three and four deep. The building in the distance is an observation tower built by the United States Government, from which one can review the battle field whose stories of courage and devotion to ideals that were common to the Blue and the Gray alike are a National heritage.

gently to drive the first main artery of traffic from the Ohio to the sea by this route. Railroads were not dreamed of in his day, and he turned his attention vigorously to the problem of digging a canal westward. It finally reached Cumberland, as the Chesapeake and Ohio Canal, but the railroads came and the other end was never finished.

For a long time the picturesque old canal carried a great volume of coal eastward, but in later decades the railroads grew in carrying capacity and in the ability to provide low rates for through traffic.

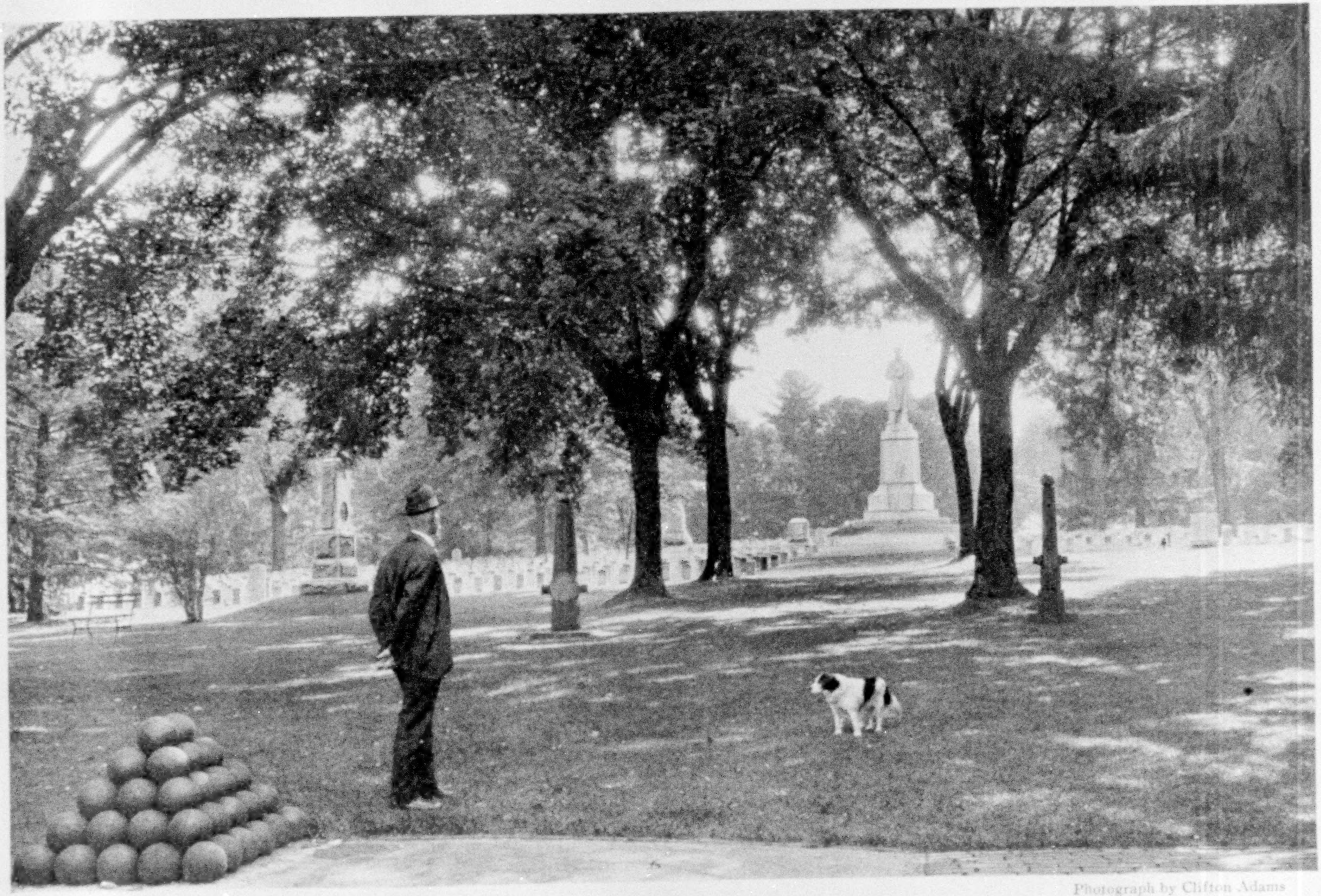
IN THE HOME CITY OF BARBARA FRIETCHIE

To-day the canal boats are rotting away, the towpath is being obliterated by weeds, and another of our inland waterways has fallen into "innocuous desuetude." But Washington's judgment still finds vindication in the vast volume of traffic that converges at and moves through the historic "narrows" at Cumberland.

At Frederick one pauses to note the site of Barbara Frietchie's house. In the Francis Scott Key Hotel is a full-page, framed newspaper story which positively asserts that she did wave her flag in the face of Stonewall Jackson and offers much evidence to support the story of her defiance of the invading army.

In Andrews' "Tercentenary History of Maryland," Colonels Bradley T. Johnson and Kyd Douglas are both quoted to the effect that the chivalrous Jackson and his staff did not ride by Barbara's house at all; but, whoever is right, it still remains that Whittier's poem symbolizes the devotion of the County to the "indissoluble union" from the days of '76, when the Frederick County delegation to Annapolis compelled all doubting hearts to declare immediately for independence.

Lincoln, passing through Frederick on his return from an inspection of the battle fields of Western Maryland several weeks after the departure of Jackson, voiced the



Photograph by Clifton Adams

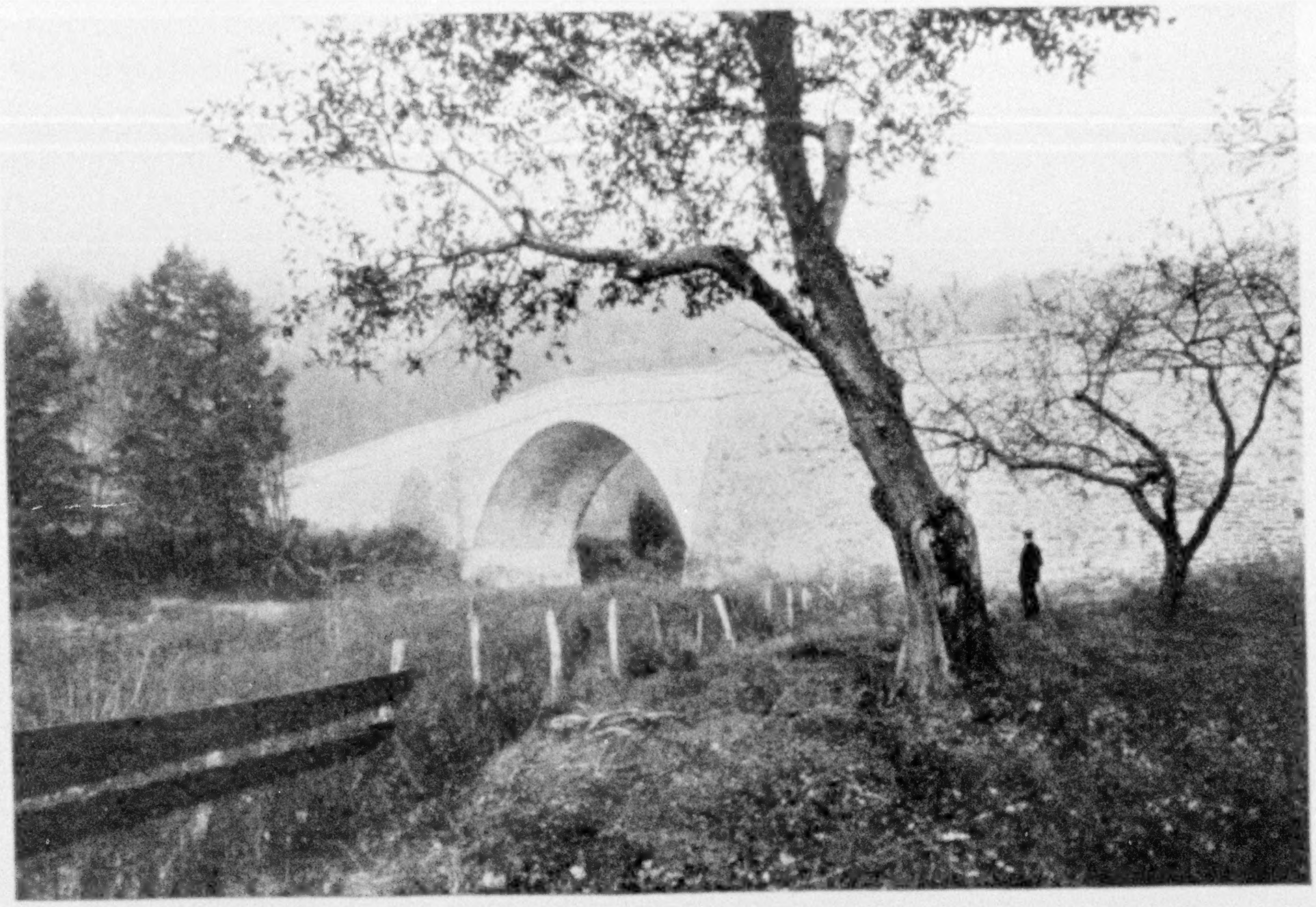
THE NATIONAL CEMETERY AT SHARPSBURG, WASHINGTON COUNTY

Over four thousand of the more than twelve thousand Union soldiers who fell in the Battle of Antietam, September 14-18, 1862, are buried here, on the summit of a small hill. It is one of the most beautiful National cemeteries in the United States.

Photograph by Edwin L. Wisherd

A SMALL PLATEAU ON TOP OF THE ALLEGHENY MOUNTAINS

In the distance is an artificial lake 27 miles long, near Oakland, Maryland.



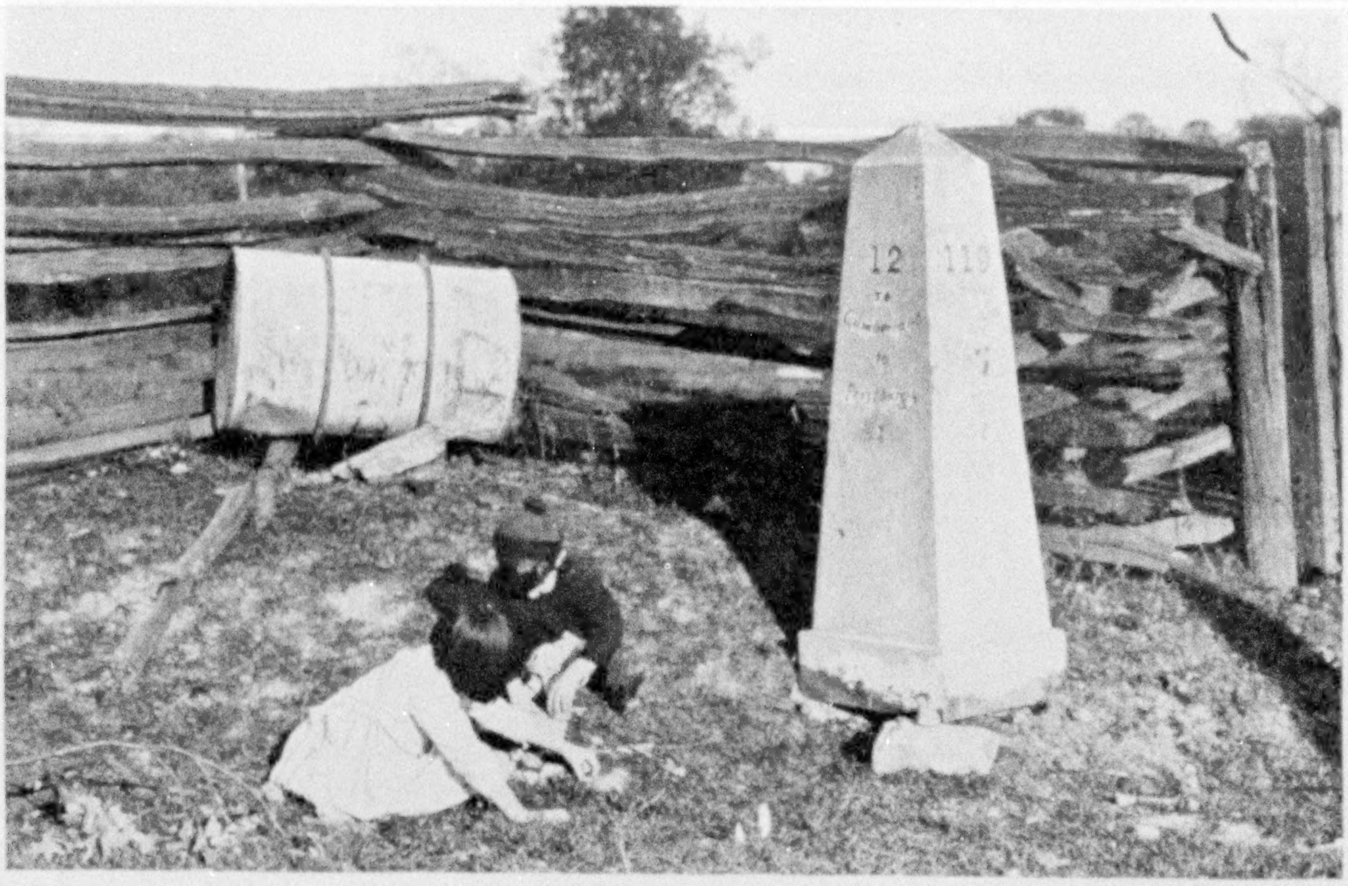
IN 1755 BRADDOCK'S ARMY CROSSED THE CASTLEMAN RIVER AT THIS SPOT

This fine old bridge, near Grantsville, was built on the National Road about 1812 and its excellent masonry is in a fine state of preservation.

Photographs by Clifton Adams

THE STONE ARCH BRIDGE OVER THE CONOCOCHEAGUE CREEK AT WILLIAMSPORT

This bridge was the object of J. E. B. Stuart's raid of October, 1862. The style of architecture is that which was generally followed by the builders of the older Maryland bridges.



THIS CAST-IRON MILEPOST WAS ERECTED IN THE EARLY DAYS OF THE NATIONAL PIKE

The pike is the most historical of our highways and was constructed with congressional aid. It started from Cumberland to Pittsburgh, Wheeling, and Indianapolis and had its prospective terminus in the West, the new town of St. Louis, on the Mississippi.

Photographs by Clifton Adams

OLD FORT FREDERICK STANDS EAST OF BIG POOL ON THE BANKS OF THE POTOMAC

About 20 miles west of Hagerstown, this fort was built, at a cost of 60,000 pounds sterling, by order of Governor Sharpe, who was Governor of Maryland from 1755 to 1776. To-day the landmark is in a fairly good state of preservation, occupying about an acre and a half of ground. The settlers of Maryland and Virginia often were forced to take refuge here on account of the raids of the Indians and the French.

Photograph by Charles D. Walcott, courtesy of U. S. Geological Survey

A REMARKABLE SYNCLINAL FOLD IN SANDSTONES AND SHALES

This formation occurs on the Chesapeake and Ohio Canal in Washington County, three miles west of Hancock.

prayers of the throngs of citizens acclaiming him, when he said to them:

"May our children and children's children for a thousand generations continue to enjoy these benefits conferred upon us by a united country and have cause yet to rejoice under these glorious institutions bequeathed to us by Washington and his 'compeers.'"

Lee's invasion of Maryland had resulted in the first check to the Confederate armies in the east.

Whittier's famous lines,

"The clustered spires of Frederick stand
Greenwalled by the hills of Maryland.
Round about them orchards sweep,
Apple and peach tree fruited deep,
Fair as the garden of the Lord,"

give an accurate picture of the verdant and prosperous landscape of Frederick and Washington counties, which George Washington, after a visit in 1791, described as "the garden spot of the United States." The wheat fields that elicited such praise from the Father of our Country have been continuously cultivated, but farmed so wisely that they still yield abundant and profitable harvests to their thrifty, industrious, and intelligent owners.

RICH MEMORIES OF FREDERICK

Frederick is the rival of Annapolis both in its colonial atmosphere and in population. Here lie buried Francis Scott Key, the author of the "Star-Spangled Banner," and Barbara Frietchie, the heroine of Whittier's poem.

On the edge of the city is an old manor that was the estate of Thomas Johnson, one of our greatest Revolutionary leaders (see page 173). The old outdoor bathhouse, with its well and its tanklike predecessor of the modern bathtub, is still shown to visitors.

A rifle company from Frederick County (which then included all of Washington,

Photograph by Edwin L. Wisherd

A TRAINLOAD OF COAL MINERS RETURNING FROM WORK

The "fourteen-foot seam" of coal in the Georges Creek region yields a semibituminous coal of high steaming qualities and greatly enhances the State's economic independence. Its cement rock and fire clay have helped to build the bridges and the industrial furnaces of the eastern half of the United States, hydraulic cement that hardens under water coming from rock quarried around Hancock and fire clay from other localities of the western part of the State.

Montgomery, Allegany, Garrett, and part of Carroll counties), under the command of Captain Michael Cresap, of Oldtown, was the first of the Southern troops to arrive for the defense of Boston after the Battle of Bunker Hill, having marched 550 miles in 22 days.

Mr. Thatcher, in his military journal of August, 1775, gives an interesting description of this gallant band:

"They are remarkably stout and hardy men, many of them exceeding six feet in height. They are dressed in white frocks, or rifle shirts, and round hats. These

PANORAMA OF MYERSVILLE FROM THE WEST

One of the prosperous little towns in the north end of the Middletown Valley, between Frederick and Hagerstown.

Photographs by Clifton Adams

WHITE CLEMATIS ON A FENCE AT BETHESDA, MONTGOMERY COUNTY

Photograph by L. J. Beachy

KEEPING MARYLAND HIGHWAYS OPEN

With a big fleet of tractor-drawn plows, the State Highway Commission battles against the snowflakes night and day in a winter storm.

men are remarkable for the accuracy of their aim, striking a mark with great certainty at two hundred yards' distance. At a review a company of them, while on a quick advance, fired their balls into objects of seven inches diameter at the distance of two hundred and fifty yards."

While the regiments of the Maryland Line bore the brunt of the campaign to recover the Southern Colonies from the British armies in 1781, some traitors were captured in Frederick conspiring with others of their kind in other States. They were tried, convicted, and sentenced by Judge Alexander Contee Hanson.

"You shall be carried to the gaol of Fredericktown and be hanged therein; you shall be cut down to the earth alive, and your entrails shall be taken out and burnt while you are yet alive; your heads shall be cut off, your body shall be divided into four parts, and your heads and quarters shall be placed where his excellency the Governor shall appoint. So Lord have mercy upon your poor souls."

Three of these misguided men were executed in the courthouse yard at Frederick, the remainder being pardoned.

It was no mere chance that a son of Frederick wrote our national anthem, "The Star-Spangled Banner," or that, 100 years later, another son of Frederick, William Tyler Page, is the author of "The American's Creed," our sublime declaration of national faith.

MARYLAND CEDED THE SOIL FOR THE NATION'S CAPITAL

Two thousand miles of pilgrimage through Maryland end at Washington. Maryland ceded the soil upon which the Nation's Capital now stands. Her legislature loaned the bulk of the funds with which it was begun. Her distinguished sons, Thomas Johnson (see page 173) and Daniel Carroll (see page 171), with David Stuart, of Virginia, were appointed by President Washington the three commissioners to lay out the Federal city.

And younger men of Maryland have labored unreservedly and faithfully in the United States Senate and the House of Representatives to make the Nation's Capital a worthy memorial of our greatest American and a fitting shrine for our Government.

DUCKS FLYING OFF MARYLAND SHORE, POTOMAC RIVER; LIVE DECOY DUCKS IN THE FOREGROUND

The shores of the Potomac, the Choptank, and other tributaries of Chesapeake Bay still remain a hunter's paradise, thousands of canvasbacks and mallards being a common sight on these waters in the winter season.

THE HEART OF AYMARÁ LAND

A Visit to Tiahuanacu, Perhaps the Oldest City of the New World, Lost Beneath the Drifting Sand of Centuries in the Bolivian Highlands

By Stewart E. McMillin

Formerly American Consul at La Paz

BOLIVIA has some of the oldest ruins, the highest navigable lake, and one of the oldest, most revered shrines in the Western Hemisphere. On our pilgrimage to those historic treasures we pushed aboard a crowded car on the Guaqui train in La Paz* one afternoon and climbed behind an electric locomotive some 1,400 feet to the rim of that huge bowl which holds the picturesque capital city; then started westward toward Tiahuanacu, our immediate goal; Lake Titicaca, Copacabana, and the Islands of the Sun and Moon.

It was September, and therefore early spring on the Bolivian plateau. Many of the Indians had finished plowing, and the ground lay fallow, as it would do until late November or early December, when barley is sown and potatoes are planted in the shallow brown furrows.

Oxen were still trudging across the brown and mauve fields, leaving little furrows surprisingly straight behind rude Indian plows, of a type which has been in use for hundreds of years—one long wooden beam with a crosspiece first hardened in a fire and then fixed rigidly downward at the rear. A part of this vertical section extends upward and is used by the plowman in guiding the implement. The whole is so light that an Indian thinks nothing of carrying one for leagues across country (see Color Plate XVI).

THE TRAIN TRAVELER IS WELL FED

Our first halt was twenty miles to the west at Viacha, a town of some importance because of railroad junctions and the big government wireless station there.

Plump little *chola* girls, with touches of lavender in the red of their cheeks, hurried aboard to sell us the fragrant coffee buns, which are almost a pastry confection for flavor and lightness and are famous all over Bolivia (see Color Plate X).

Barefooted, ragged little bootblacks pushed here and there, crying "*Lustre, señor? Lustre?*"

Outside our car windows a tattered beggar, with upturned empty hat, made the rounds of the train, promising blessings from Heaven if any one of us would but contribute a *diezicito* (ten little pennies) toward his support.

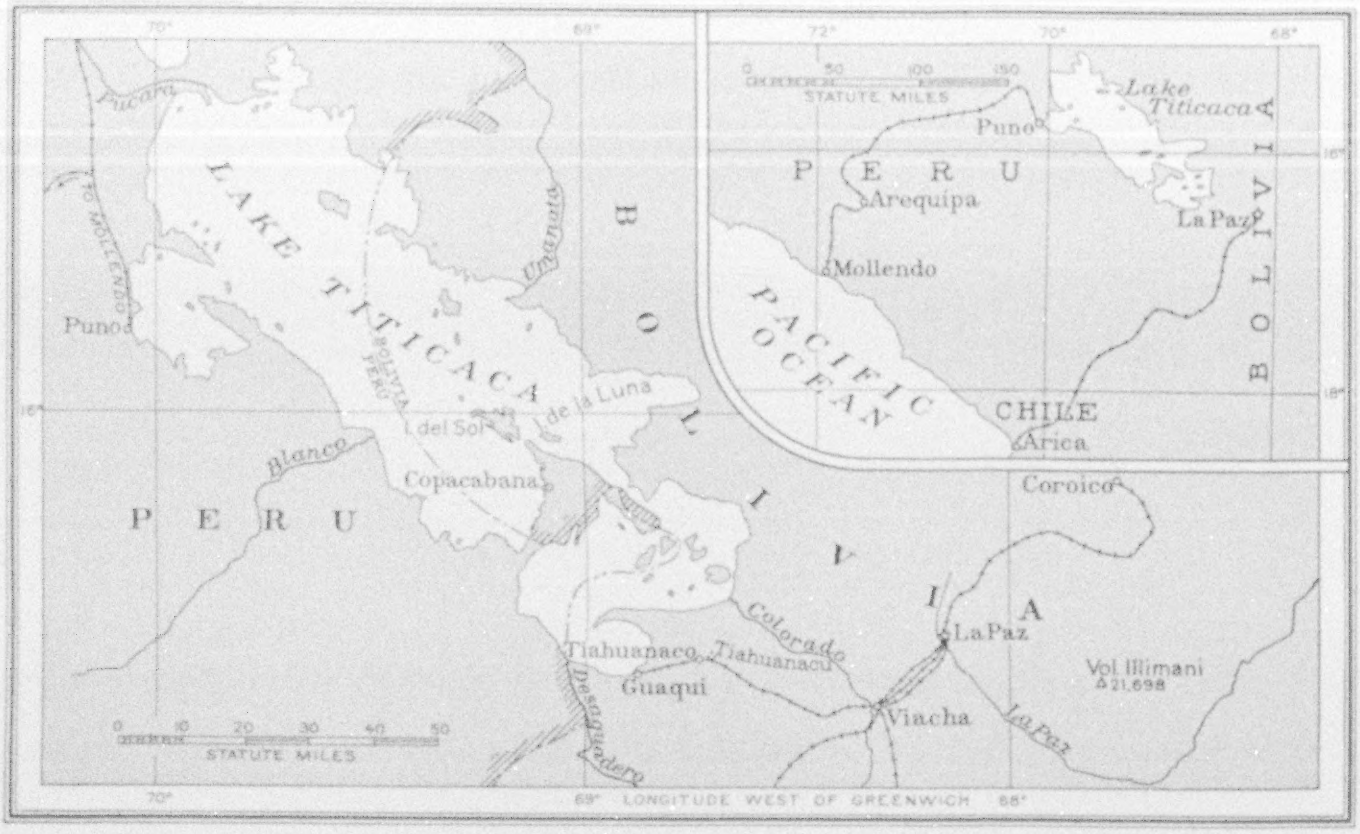
Alongside the cars squatted a row of Indian and chola women selling beer, fruit, and *empanadas,* the latter a sort of small meat pie folded over on the edges and containing within its plump form meat, or meat and potatoes, with a bountiful seasoning of red peppers ground fine.

Young men still bearing on their coat lapels rosettes of red, yellow, and green, the Bolivian colors, in commemoration of the centennial fiestas just over, were greeting others in typical Latin-American fashion, the *abrazo,* as they descended from the train—that is, by gripping one hand, drawing the object of the salutation to him, and patting him on the back with the free hand.

The roofs of Viacha are thatched mainly with barley straw, but the railway sheds and more pretentious buildings are roofed with galvanized sheeting. Near the ticket window soiled placards still announced, for the early days of August, "Solemn Coronation of Our Lady of Copacabana."

This coronation takes place every year, in the little town of Copacabana, before preparation for the planting of the crops, and ten thousand or more Indians from

* See, also, "Kaleidoscopic La Paz, City of the Clouds," by Harriet Chalmers Adams, in the National Geographic Magazine for February, 1909.



Drawn by James M. Darley

A SKETCH MAP OF THE LAKE TITICACA REGION

The ruins of the ancient capital city of Tiahuanacu, near the mountain village of Tiahuanaco, are reached by rail from La Paz, Bolivia, the loftiest capital in the world.

Bolivia, Peru, Ecuador, Chile, and Argentina gather there to ask the blessing of the Virgin Mary upon the fruitfulness of their fields and herds (see illustrations, pages 240 and 247).

THROUGH SUMMIT-CLINGING FIELDS

Finally our conductor, on the station platform, pulled a wire leading to a little bronze bell under the roof, and amid cries of "All aboard!" we were off again.

The hills had a striated appearance, for plowing had been done in the strips freest of stones, up to their very summits. Over land, tilled and unturned alike, wandered herds of sheep, llamas, mules, oxen, and pigs in search of sustenance which only a Bolivian Indian could expect them to find. The ground lay dry and red and dusty, so that the very sheep and llamas were tinted by it (see illustration, page 215, and Color Plate III).

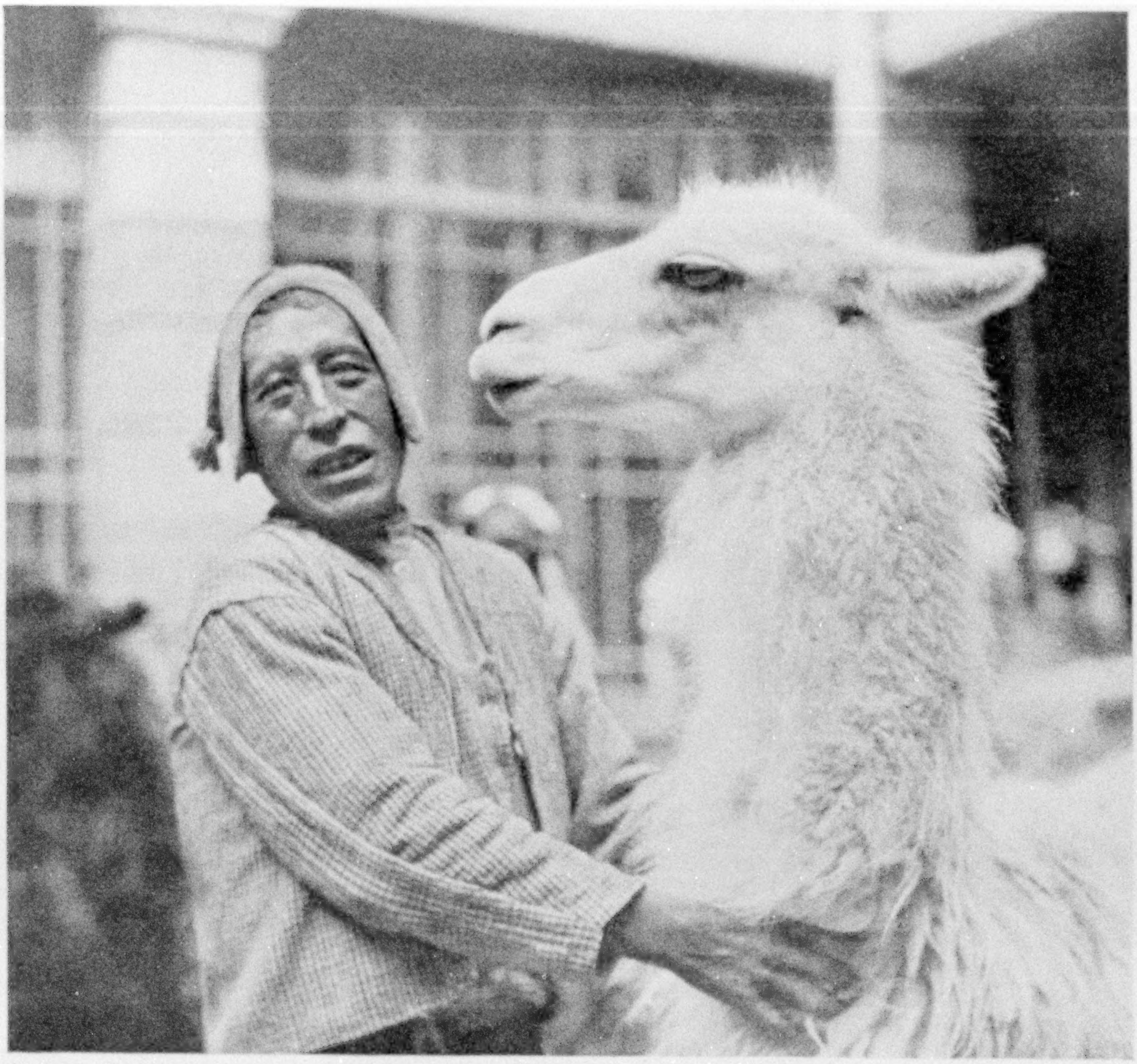
Presently the land grew manifestly richer and darkened into mauve, while hills took on brown and warm gamboge. Some ducks flew up out of a narrow pool near the tracks. Flocks and herds increased in size and number. Vegetation began to appear about tiny dwellings. Stacks of barley, weighted with rocks and held down by cords of hide, began to increase in number, smooth and rounded at the bases, where cattle and sheep could eat and rub themselves as they liked. Then the earth grew richer still, with baled barley and alfalfa hay appearing here and there in the little mud-walled farmyards.

SHRUBS, MOSS AND LLAMA REFUSE PROVIDE BOLIVIA'S FUEL

Alongside the tracks great piles of *yareta*, one of the three chief Bolivian fuels, came into view. Were it not for *taquia*, the *tola* shrub, and yareta, the poor Indian, the wealthier Bolivian, and even the resident foreigner would find it hard to make a fire. Taquia, used most widely of all, is the dried droppings of the llama. The little tola shrub grows everywhere upon the plateau at an altitude of 14,000 feet or more.

Yareta grows in low, rounded masses, and resembles great domes of moss frequently six feet across. Its long roots are impregnated with resin and burn fiercely. It is widely distributed in high sections where there is not too much rainfall and the land is not desert.

This is a region which newly arrived



Photograph by Gerstmann

AN AYMARÁ AND HIS CAMEL OF THE PLATEAU

The llama as a beast of burden provides one of the oldest methods of transportation known to South America. It was domesticated so long ago that no wild members of the family remain. The ancient Incas extended their influence and developed their culture by raising and training thousands of these animals to carry burdens of from 50 to 100 pounds in weight for the construction of their difficult, stupendous engineering and agricultural works (see, also, Color Plate III).

travelers consider almost devoid of life; yet the plateau fairly teems with it. Hundreds of little mud huts are everywhere, but they are most inconspicuous, as are also the dusty animals and Indians themselves. Of a sudden one notes a bright spot of color, a man's red poncho, perhaps, or the orange skirts of a woman, and, looking more closely, one finds that Indians are at work all about (see Color Plates VIII, IX, XII, XIII, and XIV).

High above every village, however small or squalid, tower big churches with mounting spires, typifying one of the great interests of Indian life.

In front of the tracks we observed great domed earthen ovens, some 7 feet high by 6 in diameter, where most of the family cooking was done.

At intervals we caught the yellow gleam of a little field of barley stubble not yet turned.

There were trails everywhere, but few roads. Presently, however, just before sunset, a road took form along the tracks leading toward Tiahuanaco. On the outskirts of the town an Indian with an alpaca wool rope attached to a black jar with a slender neck was drawing water from a shallow well. For a moment his gaunt face showed coppery against the gray smoke of his hut, as we drew

Photograph by Gerstmann

A SMILING MEMBER OF A TACITURN RACE

The Aymarás are the agricultural laborers of the Peru-Bolivia Plateau and have a hard struggle against cold and hunger. They are usually of a solemn or melancholy disposition, but this native of the Island of the Sun (see, also, illustration, page 243) has a somewhat easier existence than his brothers, with the result that mirth is not a stranger to him.

abreast; then we pulled into Tiahuanaco village with the hillsides lilac under a lowering sun.

THE RIDDLE OF TIAHUANACU

The village of Tiahuanaco is situated near the ruins of the ancient city of Tiahuanacu, which, according to most chroniclers and Indian historians, did not bear that name during the Spanish Conquest, nor even while the Incas were masters of the district. It is generally agreed that Tiahuanacu is a Quichua denomination bestowed only a few hundred years ago.*

Its meaning, too, is disputed. The greater number of Spanish historians, following the lead of Garcilaso de la Vega, born of an Inca princess, have agreed on its Quichua derivation; that Tia or Tiay comes from the verb *sentarse*, to be seated, and that the words translatable as *sientate huanacu* were addressed by an Inca at this spot on receiving from Cuzco a jaded postboy or courier, whose fleetness he compared with that of the *huanacu* (guanaco), and commanded him to be seated in his presence and to take his rest.

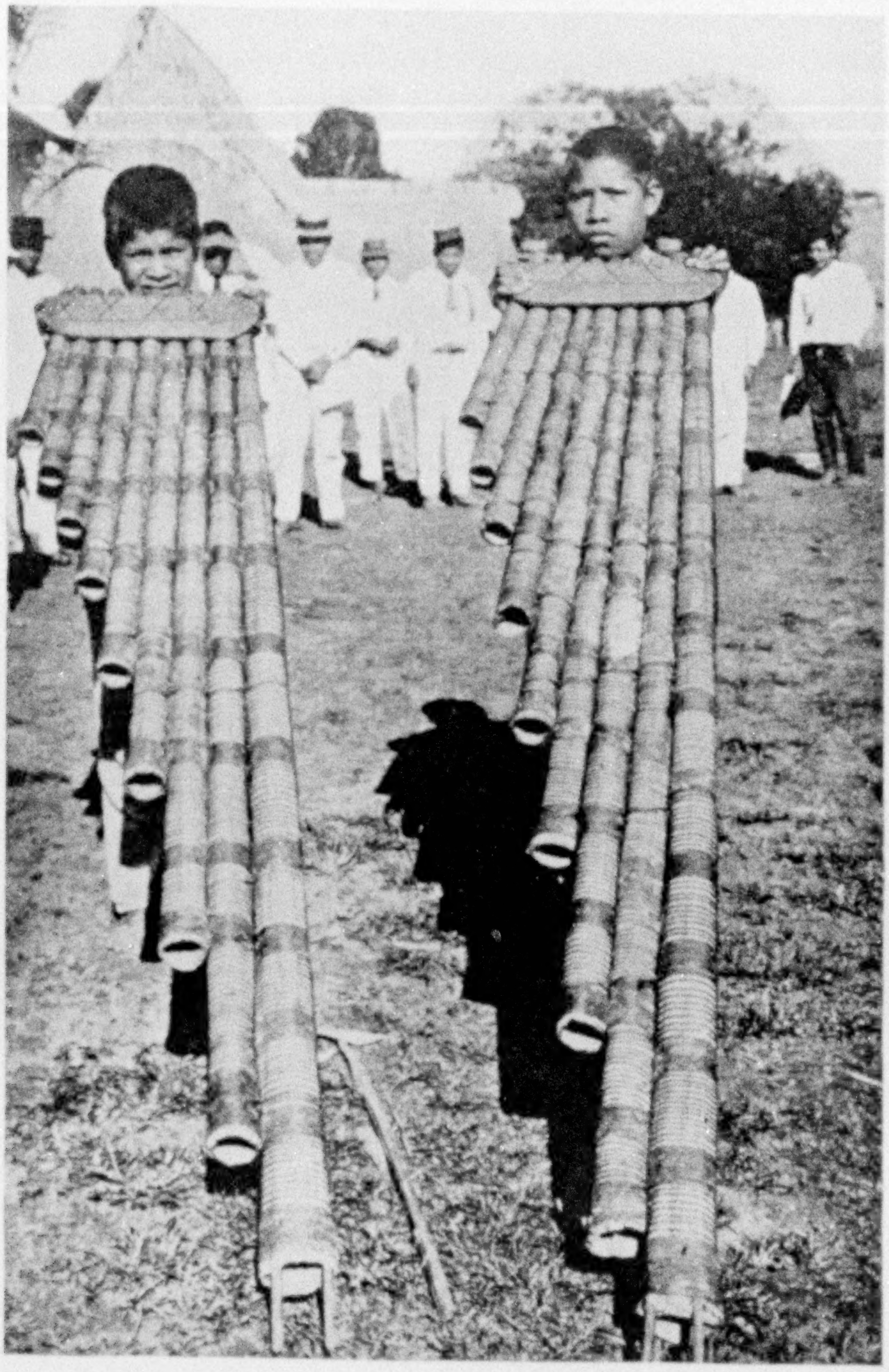
But there are other meanings attributed to the word, merely from a different division of the syllables.

On what may have been the true history of Tiahuanacu ruins one speculates fruitlessly, for its carvings and its characters have never been read with certainty. To attribute the structures to Aymará or Quichua peoples, races of yesterday, is incorrect. The Aymará tongue is the Sanskrit of America, and even older than Tiahuanacu; but the Aymará race itself, conquered by the language and taking name from it, is far younger (see, also, text, page 246).

Geographically considered, it seems well established that the ancient city, now

* See, also, "Some Wonderful Sights in the Andean Highlands. The Oldest City in America," by Harriet Chalmers Adams, in the NATIONAL GEOGRAPHIC MAGAZINE for September, 1908.

situated on a spacious plain some 13½ miles from Lake Titicaca, once stood on the shores of a southern bay of the lake, for north of the ruins exist traces of a harbor mole, Lake Titicaca apparently having receded in the course of the centuries.



Photograph from Stewart E. McMillin

PIPES OF ARCADY IN A BOLIVIAN SETTING

Panpipes were played in the Andes long before the arrival of the Conquistadores, and even to-day couriers of the modern Children of the Sun use them to announce their arrival and departure. The Aymarás pipe on this large-sized version during certain of their ceremonial dances (see, also, illustration, page 245, and Color Plate XIV).

THE PRODUCT OF TWO CIVILIZATIONS

Tiahuanacu has been judged the product of two distinct and successive civilizations, the latter supposedly reconstructing, to some extent, ruins left by an earlier people. Some investigators attribute the reconstruction work to the Aymarás, whose descendants now dwell in the region, but the latter have no traditions or legends about such builders, much less of the primitive preceding civilization.

Dr. Belisario Díaz Romero, formerly director of the National Museum of Bolivia, thinks we must seek for the origin of the primitive Tiahuanacotan in an ancient Andean race of Mongoloid source, the predecessors or contemporaries of the predecessors of the founders of the Mayan civilization in Central America. The resemblance of the present Aymará Indian inhabitants to the Asiatic Mongols is startling. We constantly commented on it.

LIKE THE MONGOL, THE QUICHUA IS PRACTICALLY BEARDLESS

The Aymará-Quichua peoples are identified by many students of anthropology with the Tatar-Mongols in all the South American groups in Peru, Chile, Argentina, and ancient Colombia, and are of a type chiefly brachycephalic. In height they are about 5 feet 2 inches, though much taller Indians are frequently found among the purely Aymará branch. The head is large, the face broad, and cheeks wide; the nose is large and salient, but never sharp; the eyes are small and

usually black, the lips thick (see illustration, page 216).

Ordinarily they have absolutely no beard, though the lighter and yellower Quichua sometimes displays a wisp in the crease of either cheek above the mouth and perhaps a few straggling hairs under the chin. The neck is short and thick, the shoulders massive, the chest deep. The skin is swarthy brown or coppery to dark olive.

While hair on the face is almost totally lacking, the head bears hair which is black, thick, and strong.

The Quichua appears more robust than the Aymará, though usually somewhat shorter, while his cheekbones are more prominent, his forehead a bit more protuberant, and his skull oblong.

Whether the ancient Mongols crossed over Bering Sea and traversed the great region from the north to the vicinity of the Bolivian plateau, or whether there really existed the fabled land bridge across the Southern Pacific, are matters more of human interest than of material significance. That they were the ancestors of the present-day Aymarás, as well as of all other American Indian tribes, is generally accepted.

There are many indications that two very different civilizations succeeded each other at ancient Tiahuanacu. Many of the worked stones are only half finished, which induces the belief that some great catastrophe, natural or otherwise, compelled the workmen to leave their task uncompleted.

The character of the work itself denotes that the half-shaped and sculptured stones belong to the second phase of Tiahuanacu's history. Statues and monoliths are not of the same rock materials, nor of the same artistic style. Some are of the gray-grained arsenic stone, almost as enduring as flint, while others are a sort of red sandstone, apparently more enduring than one might think. The latter would seem to be of the second epoch; and this is the stone in which one finds the unfinished work.

A STONEHENGE OF ANCIENT AMERICA

Great menhirs, or monoliths, inclose an enormous quadrangle to the east of the present village. To one who has visited Stonehenge, near Salisbury, England, they have a not unfamiliar aspect.

Dolmens, or stone tables, generally consisting of three or four large flat stones, covered with another and larger one, like a table supported by its legs, are found in many places about this region, but more especially near the shores of Lake Titicaca and upon its many islands.

These may be the remains of what once were tombs of heroes and notables to whom the tribe wished to pay tribute. They are similar in appearance to those seen in Denmark, Germany, France, and other European countries.* Covered galleries, with their openings always toward the rising sun or to the north, are occasionally found in the low hills near the Tiahuanacu ruins.

Other features of these monuments are the great statues hewn out of the raw stone, representing heroes and divinities, a class of sculpture said to be entirely lacking among European ruins of comparable culture† (see illustrations, pages 239 and 241).

THE GREAT HILL OF AKAPANA

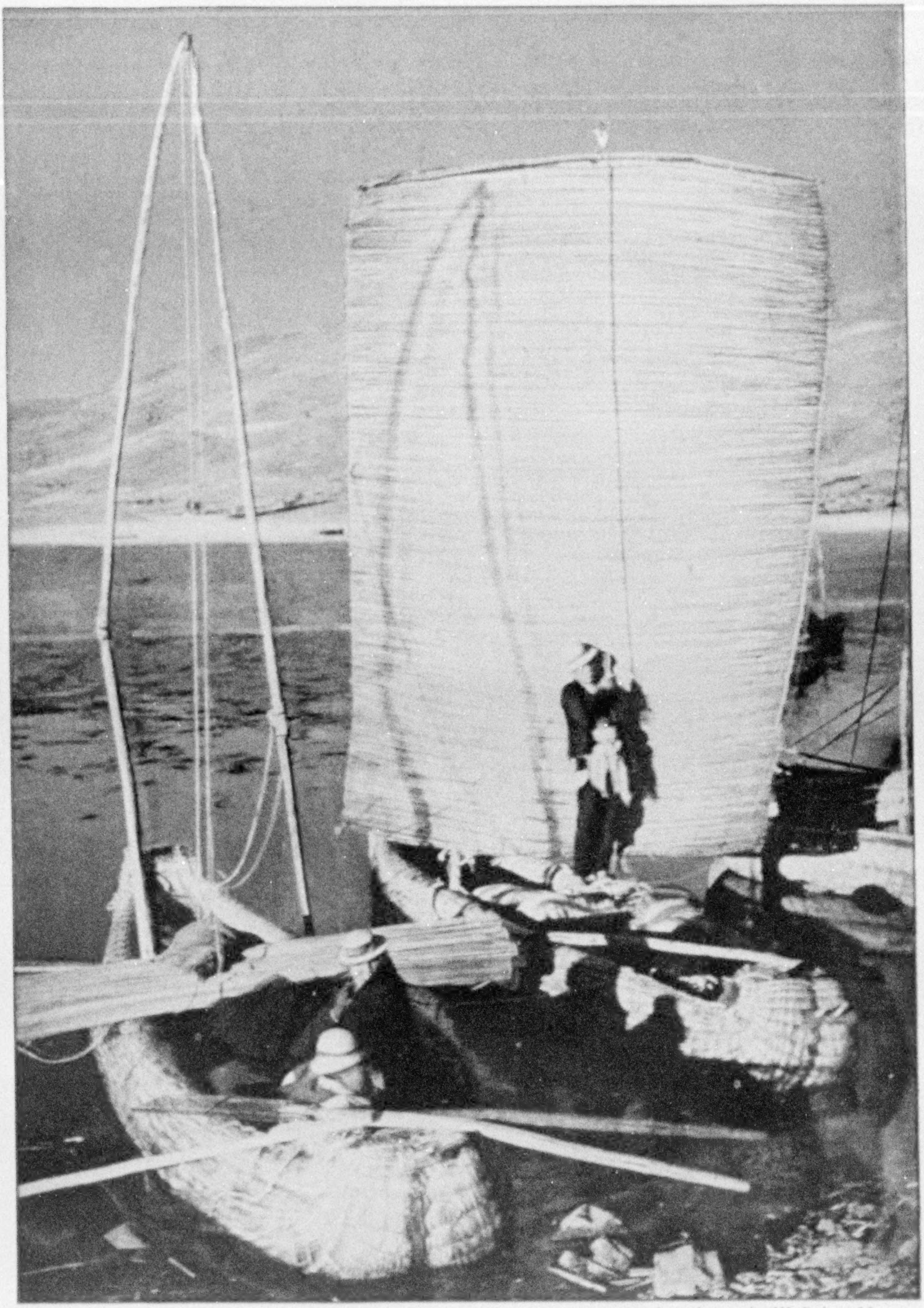
Bolivian investigators have designated by their various Aymará names the different sections of the ruins. That nearest the Guaqui-La Paz Railway tracks, entering Tiahuanacu, is called Akapana, a great hill suggestive of the creations of our ancient North American mound builders. It also bears other names which, translated, mean The Fortress, Artificial Hill, and Hill of the Sacrifices.

It rises to a height of about 165 feet. The base is an irregular parallelogram, with the four sides duly placed toward the four cardinal points. Its flattened surface, with sloping sides, makes it a sort of truncated pyramid. Apparently it once stood in the midst of a series of pyramids, but treasure-hunters have marred these sadly.

The side walls, about 485 by 650 feet, were made of huge joined rectangular

* See, also, "The Mysterious Prehistoric Monuments of Brittany," by Charles Buxton Going, in the NATIONAL GEOGRAPHIC MAGAZINE for July, 1923.

† Of interest for comparative purposes, see "The Mystery of Easter Island," by Mrs. Scoresby Routledge, in the NATIONAL GEOGRAPHIC MAGAZINE for December, 1921.



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NAVIGATION TWO-AND-A-HALF MILES ABOVE THE SEA

Titicaca is the highest large lake in the world and these Indian *balsas* are the principal craft that ply its chilly waters. Their hulls are made of bundles of dried bulrushes, tightly fastened together and turned up at the ends. The sails consist of mats of the same material. Due to the fact that nearly all lumber in this region comes from distant places, many of the masts are made by splicing small pieces of wood together. Balsas quickly become water-logged and must be hauled ashore frequently to be dried out.

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HARVESTING GRAIN IN THE VALLEY OF CUZCO

Gathering crops in the Andes is a community enterprise. All the farmers of a locality help each other to cut the grain by hand and then tie it into large bundles, which they carry on their backs to the threshing floors. The field in which these men are working was once the site of a great Inca fortress.

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"SHIPS" OF THE ANDES

Like the camel, to which they are related, llamas can go great distances with very little food and water. They are, however, much handsomer and better tempered than the ungainly "ships" of the desert, and are valued highly as sure-footed beasts of burden in altitudes where horses do not thrive. The llama also produces wool, but of a coarser and less valuable grade than that of its smaller cousin, the alpaca.

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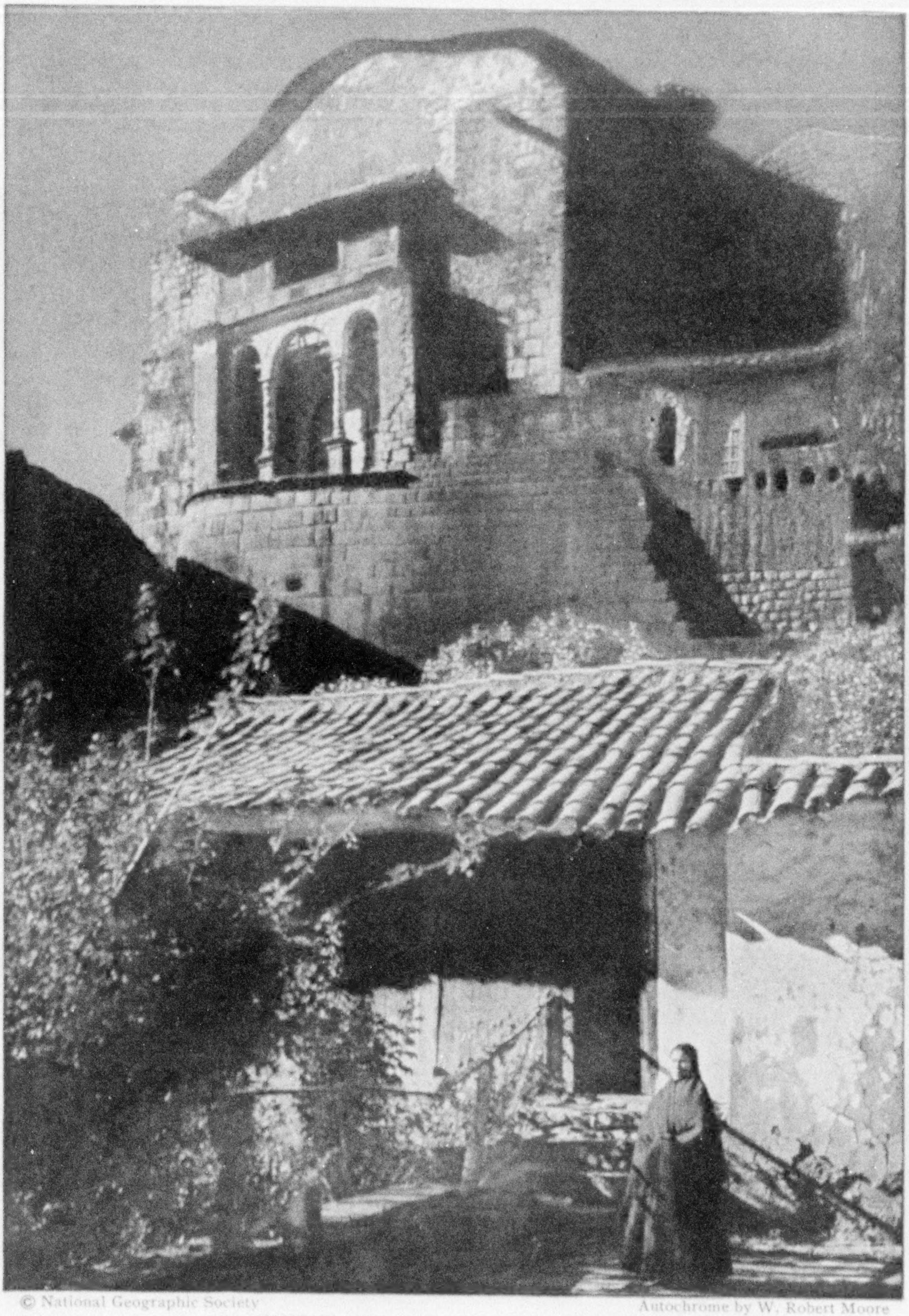
A DAUGHTER OF THE CONQUISTADORES

Many of the aristocrats of the Andean countries are of pure Spanish blood and trace their descent back in direct line to those grandees and their followers who seized and settled the Empire of the Incas. La Paz, the home of this charming señorita, is the world's highest capital, being situated more than 12,000 feet above the sea.



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ANCIENT SITE OF THE SUN GOD'S THRONE

The ravages of time and the heavy hands of the conquerors have wrought sad havoc with the ancient Inca Temple of the Sun at Cuzco. The Convent of Santo Domingo is built on its ancient foundations and a Christian altar now stands on the very spot once occupied by the emblem of the Sun God.

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THE HOME OF ONE OF THE NEW WORLD'S OLDEST CENTERS OF LEARNING

The University of Cuzco was founded in 1598 and, like San Marcos at Lima, which antedates it by nearly half a century, is one of Peru's leading institutions of higher education. This part of the University was formerly an old Jesuit church and its façade of reddish basalt presents an excellent example of the ecclesiastical art of the stonemasons of the sixteenth century.

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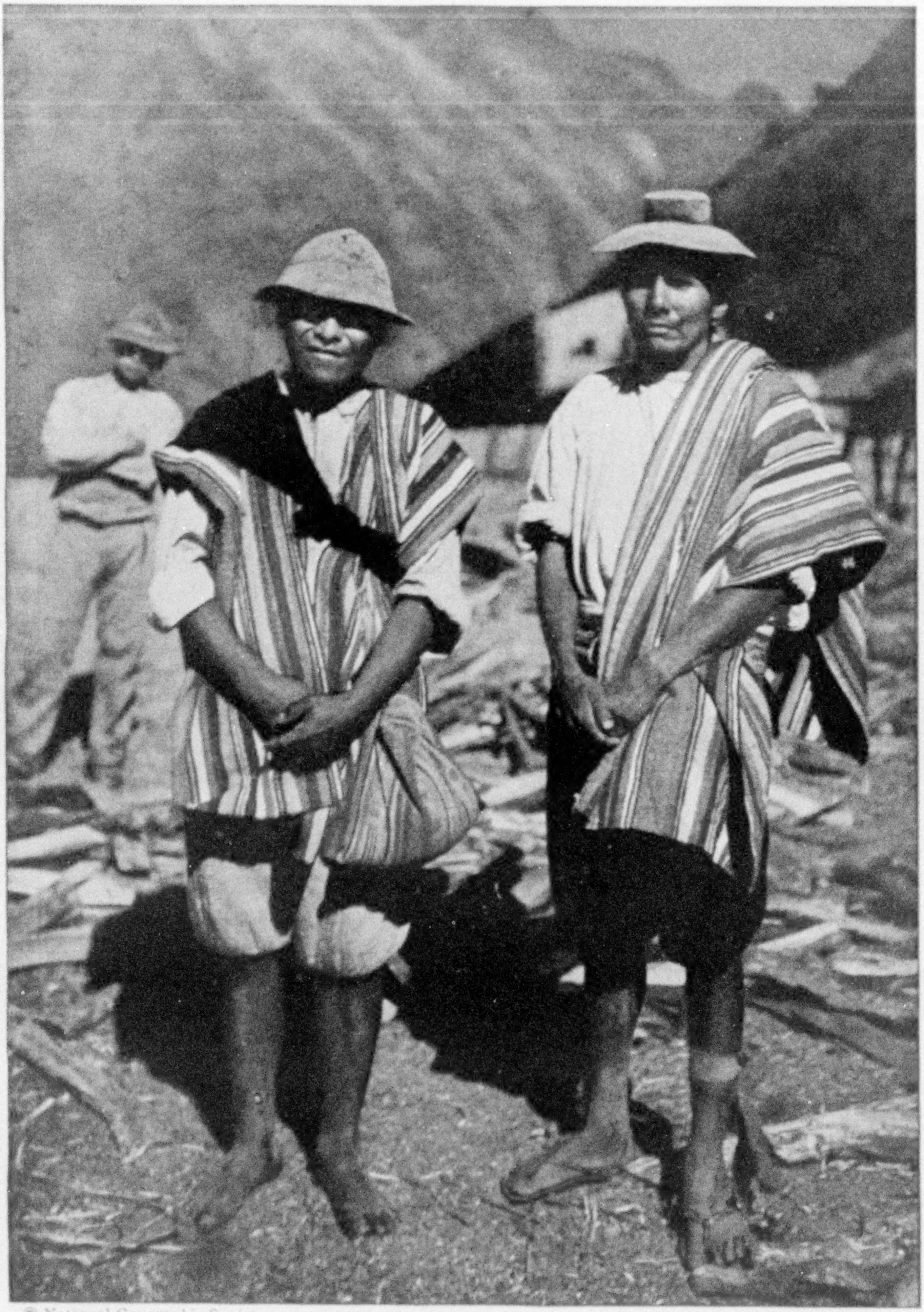
DWELLERS IN THE HIGH PLACES

Many of the Indians of Bolivia and Peru, while living practically within the Tropics, enjoy the stimulating climate of high temperate zones, because of the elevation of their homes and fields among the Andes. The mottled patches on the mountain side are wheat fields. Most of these Indians are agriculturists, but few own the land they cultivate.



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DESCENDANTS OF THE "CHILDREN OF THE SUN"

It is often bitterly cold in the Andean highlands but neither men nor women wear any footgear other than sandals. The principal item of masculine attire is a brilliant *poncho* worn over the shoulders, with a slit in the center for the head. The style of the hat varies with the locality. When evening comes the Indian "holes up"—slips his head through his poncho.

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A PERUVIAN STREET MERCHANT

With her straw "tam" worn at a properly rakish angle, this young woman invites the passers-by to stop and invest in the bread and *chicha* which she has for sale. Chicha, which is held in high esteem by the Indians of both Bolivia and Peru, is a fermented corn beverage, not unpalatable when properly prepared.

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THE BOLIVIAN "TOPPER" IS FEMININE HEADGEAR

The *cholas* or mixed-bloods of La Paz are usually more prosperous than their purely Indian neighbors. The women wear elaborately embroidered shawls, lace petticoats, and peculiar white straw hats with very high crowns, stiffly varnished. So enamored are they of these headdresses that they frequently go about their household duties without removing them.

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A VALE IN THE HIGH ANDES

To such retreats the Incas retired before the advance of their cruel and avaricious sixteenth-century conquerors. Even here, however, their bravery proved no match for the firearms of Europeans. They lived for a time as hunted fugitives, pressing ever higher and deeper into the mountains, where hunger and persecution finally all but exterminated them.

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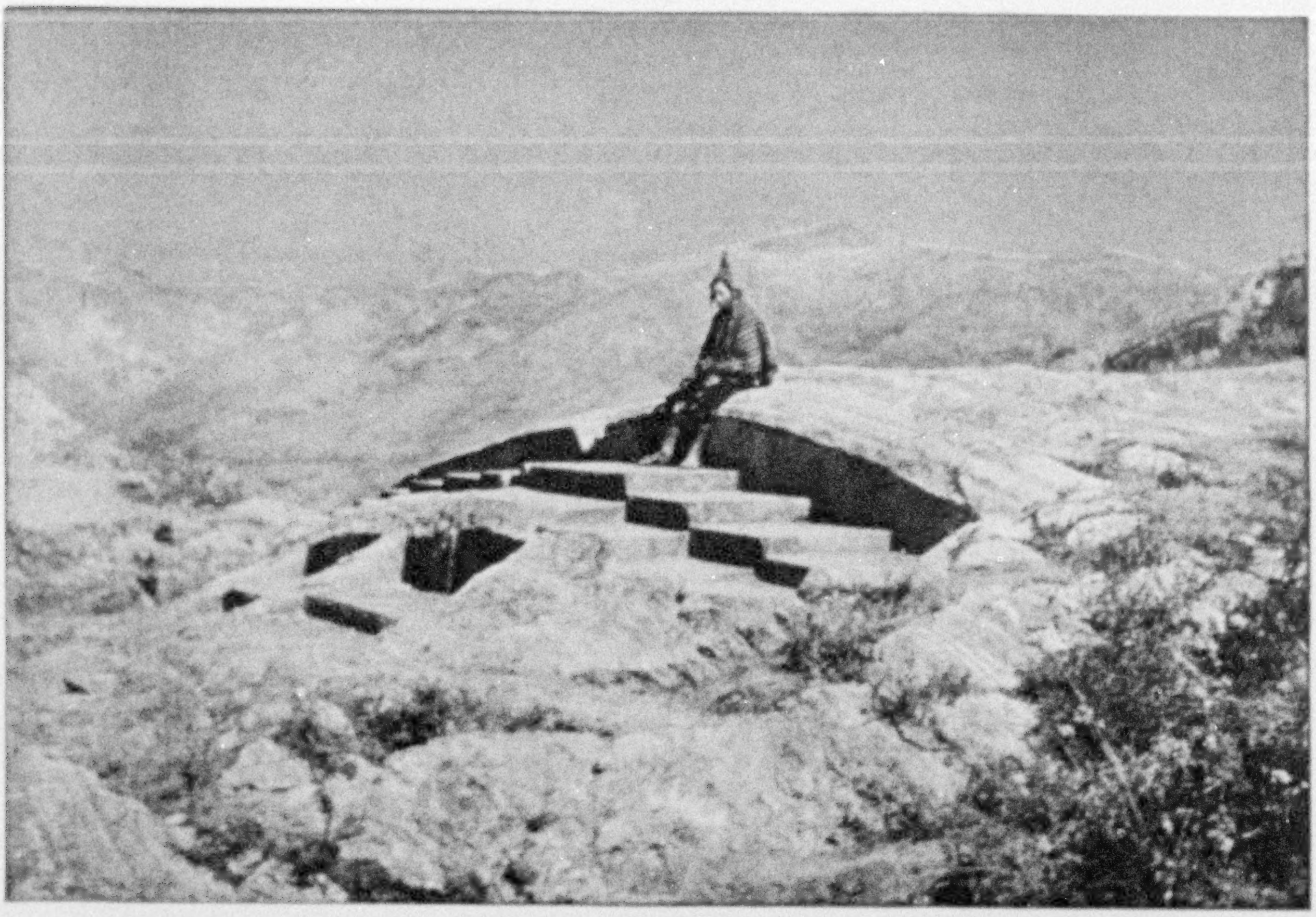
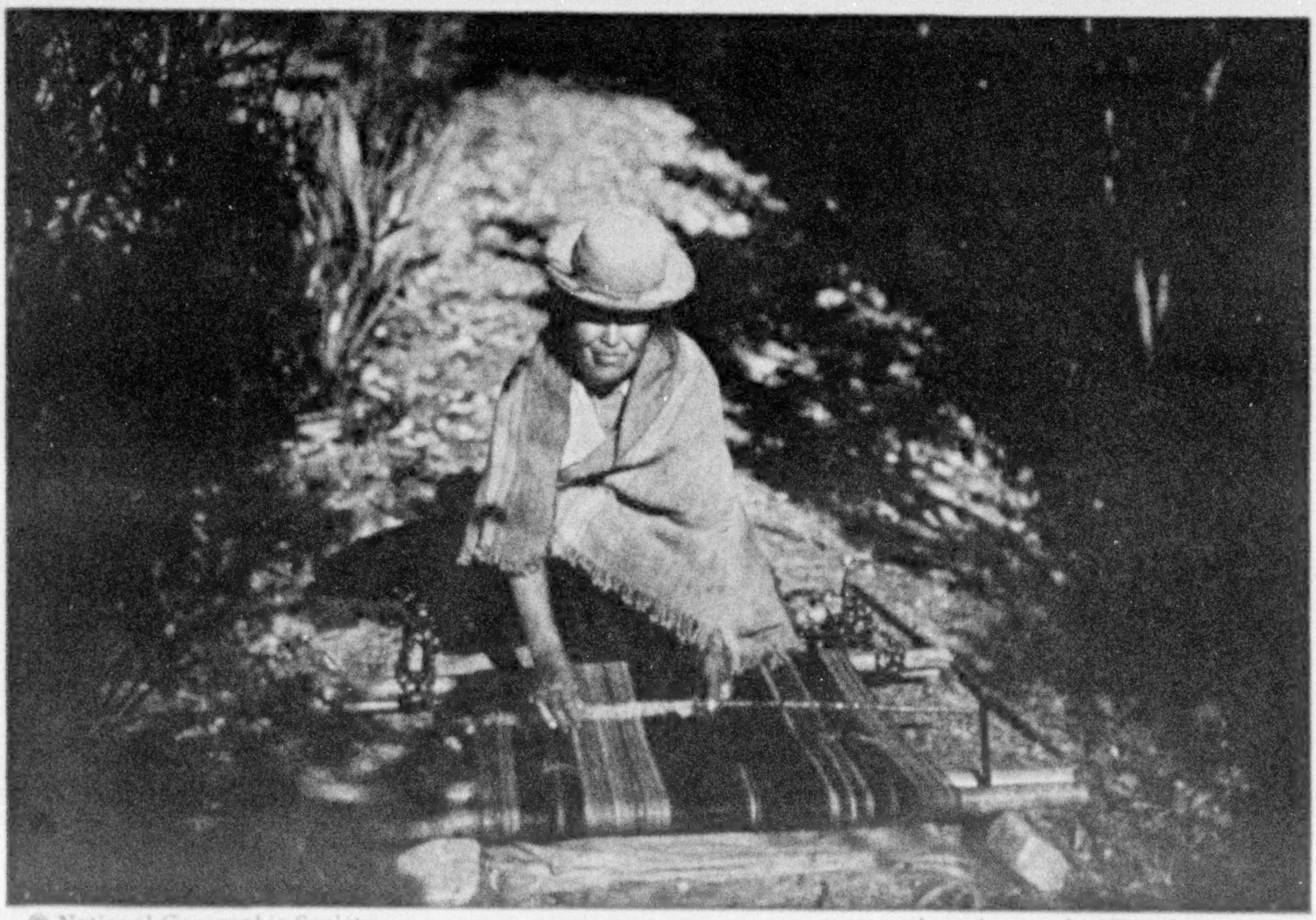
INDIAN PORTERS OF SOUTHERN PERU

Through the rugged mountain passes these men travel at a steady gait, carrying heavy loads for long distances. They require little food, but chew quantities of the dried leaves of the coca shrub, which seem at once to stimulate their physical powers and deaden the nervous system to all sense of fatigue. The knitted caps with earlaps are peculiar to certain sections of the Andean heights.



THE SEATS OF THE MIGHTY

Many an Inca and his nobles have occupied these rock-hewn thrones in ages past.



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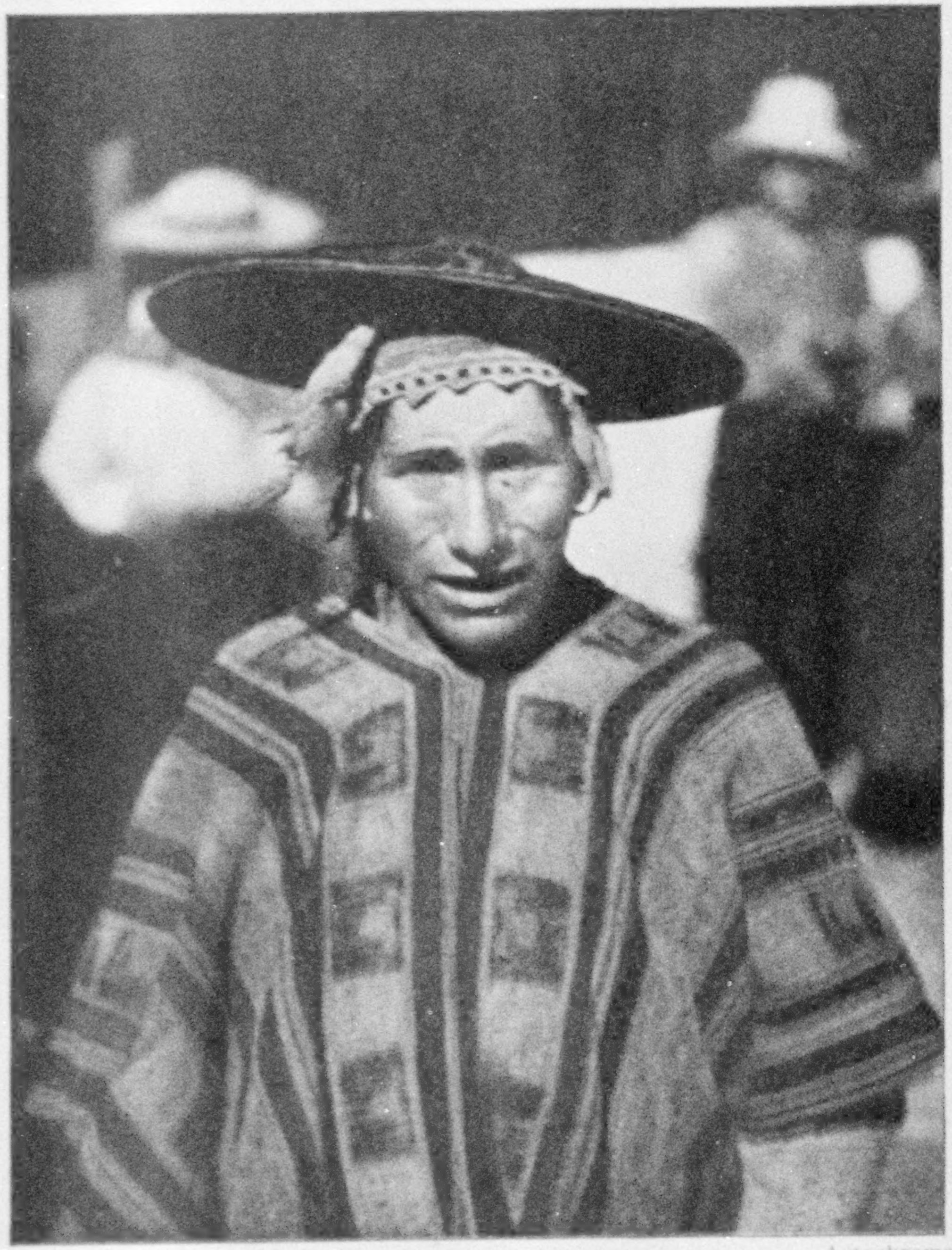
A PONCHO IN THE MAKING

The Andean Indian uses a small loom, staked to the ground, in weaving his yarn into a tight fabric which meets well the exacting demands of the high altitudes (see also Color Plate VIII).



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INDIANS OF PERU (LEFT) AND BOLIVIA (RIGHT) IN HOLIDAY ATTIRE

Fiestas provide occasions for wearing gay costumes in both Andean republics. Among the Peruvian Indians a flat straw hat, not unlike that of a Chinese coolie, is superimposed upon a bright-hued, knitted cap with tassel and eartabs. The Bolivian is partial to plumes in his hat.

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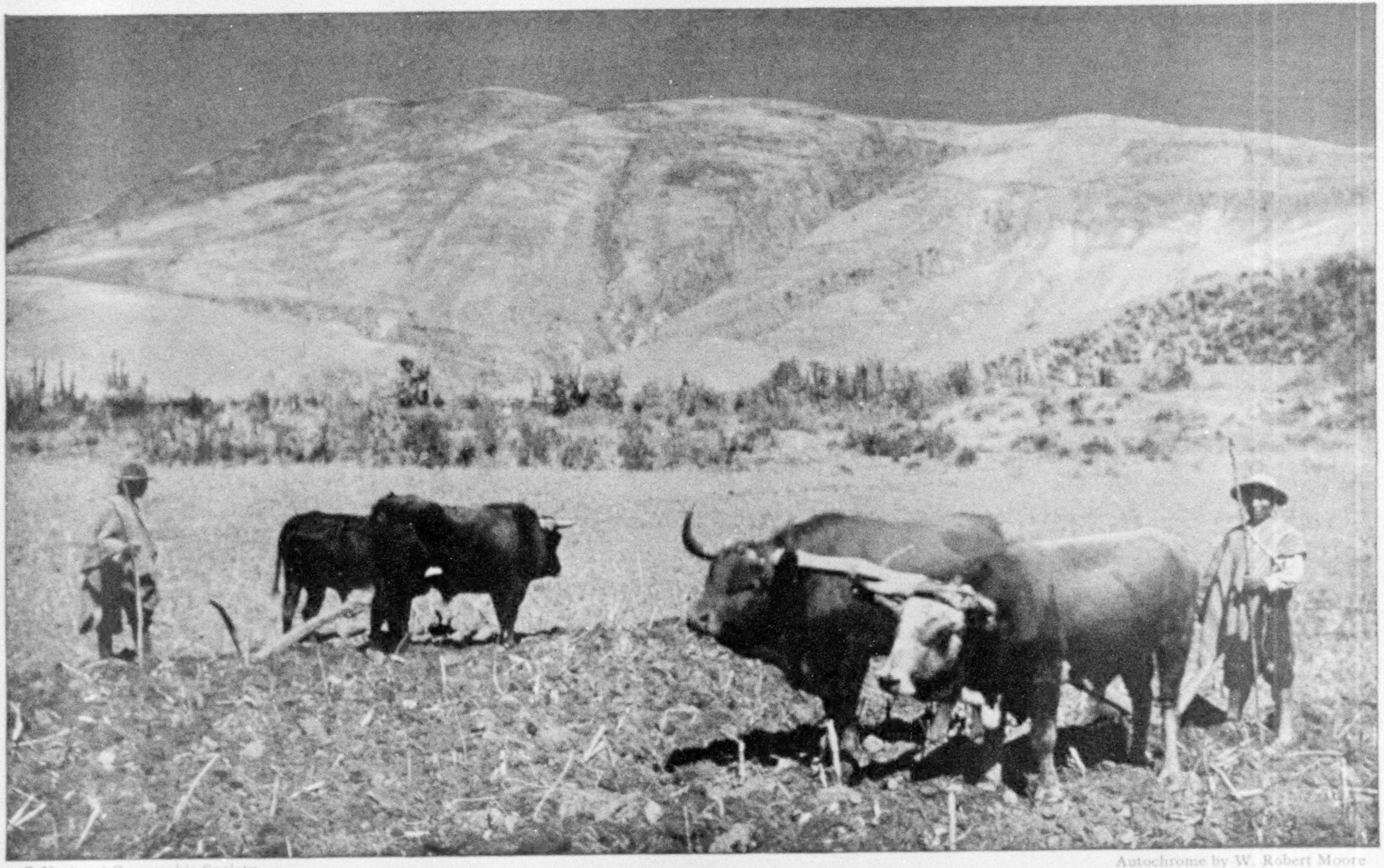
OVERLOOKING THE VALLEY OF CUZCO

From the Inca throne carved out of the natural rock (see Color Plate XIII) the pre-Columbian rulers of this land are supposed to have watched their patient subjects labor at the construction of the magnificent walls of the fortress of Sacsahuaman, the ruins of which may be seen at the right. Some of the individual stones in these walls weigh as much as twenty tons. The snow-clad summit of Mount Ausangate, which rises to a height of nearly 21,000 feet, may be seen in the distance.



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ARCHAIC AGRICULTURE IN MODERN PERU

Despite the fact that they employ much the same methods of cultivation as did their remote ancestors, these native farmers generally obtain good crops. The bullock is the usual draft animal and the plow is of such primitive construction that it can cut only a few inches into the ground.

rocks, with smaller ones solidifying the whole, but great quantities of the latter have been borne away by the Indians for fences, corner stones, and house masonry, until the whole work has become a ruin of ruins.

A stairway once led to the upper level, where a great basin of water stood. A part of the hill slopes near by have been sown to grain by thrifty Indian families without sentiment.

A canal of stone seems to have led down the side of this mound, for some purpose not now clear, and sections of the graystone trough conduits still exist in short pieces in one of the ruins below.

Whether this hill was the center of religious worship, a place for sacrifice, the home of monarchs, or a place of defense, will probably never be known.

VANDALISM HAS MARRED THE TEMPLE OF THE SUN

North of Akapana, a thousand feet or less from its base, lies what is generally considered the oldest of the ruins, Kalasasaya, or Temple of the Sun. It is a parallelogram about 400 feet square, marked on all sides by upright menhirs from 15 to 20 feet high.

This ruin rises from a single terrace, about 10 feet above the surrounding plain, which is said to have been covered entirely with smooth paving stones at one time. The inhabitants of Tiahuanaco village and the residents of the country round about have borne away what they could for their houses, however, until almost no trace of the paving remains.

Monolith and statue bases, tops of great pillars, conduit sections, and pieces of doubtful origin still remain here and there, but this whole ruin is one great, silent testimony to the unthinking expediency of Aymará Indians, nearly everything movable having been taken. In times past troops have even been quartered among the ruins and have practiced their marksmanship on the priceless relics.

Pillars are deeply rooted in the soil and so cut and designed as to bear great slabs, platforms, and arches. They are from 16 to 20 feet apart. Even where their tops are not chiseled and sculptured they are nearly the same height, making it apparent that once they bore the lintels and other pieces of structural stone.

One enters this ruin on the east by a stone stairway of 8 or 10 broad, well preserved steps, about 20 feet long, flanked by two monoliths and leading up to the level of the quadrangle.

In the northwestern angle of Kalasasaya the Great Portal, Sanctuary, or Gateway of the Sun, as it is variously known, is the most interesting single portion of the ruins to the east of the village. Once recumbent, it is now standing upright, restored, though unfortunately broken through the upper section to the top of the doorway by a bolt of lightning, it is thought, and the two parts rest obliquely against each other.

This famous door, like others of Tiahuanacu, was shaped from a single block of gray volcanic rock about 16 inches thick. Standing erect, it measures some 11 by 15 feet and faces toward the east. Its central doorway measures 4½ feet in height and 2½ in width.

This surprising façade is wonderfully ornamented in low relief upon the eastern side above the door. The western face is comparatively plain. On either side of the door, on the west, is a niche about 1 foot wide by 2½ feet high and 4 inches deep. Above each are two smaller niches in the upper part of the stone, about 6 inches wide, 1 foot high, and approximately of the same depth as the larger ones.

Photographs of the relief on the eastern side of the stone excel description in depicting the exact nature of the carvings (see illustration, page 238). The motif consists in general of a figure of the Sun God, the rays about his head, some of which terminate in small heads of a jaguar, the Tiahuanacu God of Night, and bearer of the moon in the sky.

A MASTERPIECE OF PRIMITIVE CARVING

In each hand the Sun God bears a hoe-shaped scepter. He is flanked by 48 figures, 24 on a side, consisting of three rows of eight figures each, about a fourth his own size.

These figures all face the god, are running toward him, in fact, and carry small scepters similar to his.

Upper and lower rows on either hand

Photograph by Luis D. Gismondi

CHRISTIAN WORSHIP IN THE ANCIENT CENTER OF THE SUN GOD

The cathedral in Tiahuanaco village is partially built with stones brought from the ancient site and is probably from 300 to 350 years old. Worn stone idols flank the entrance (see, also, text, page 256).

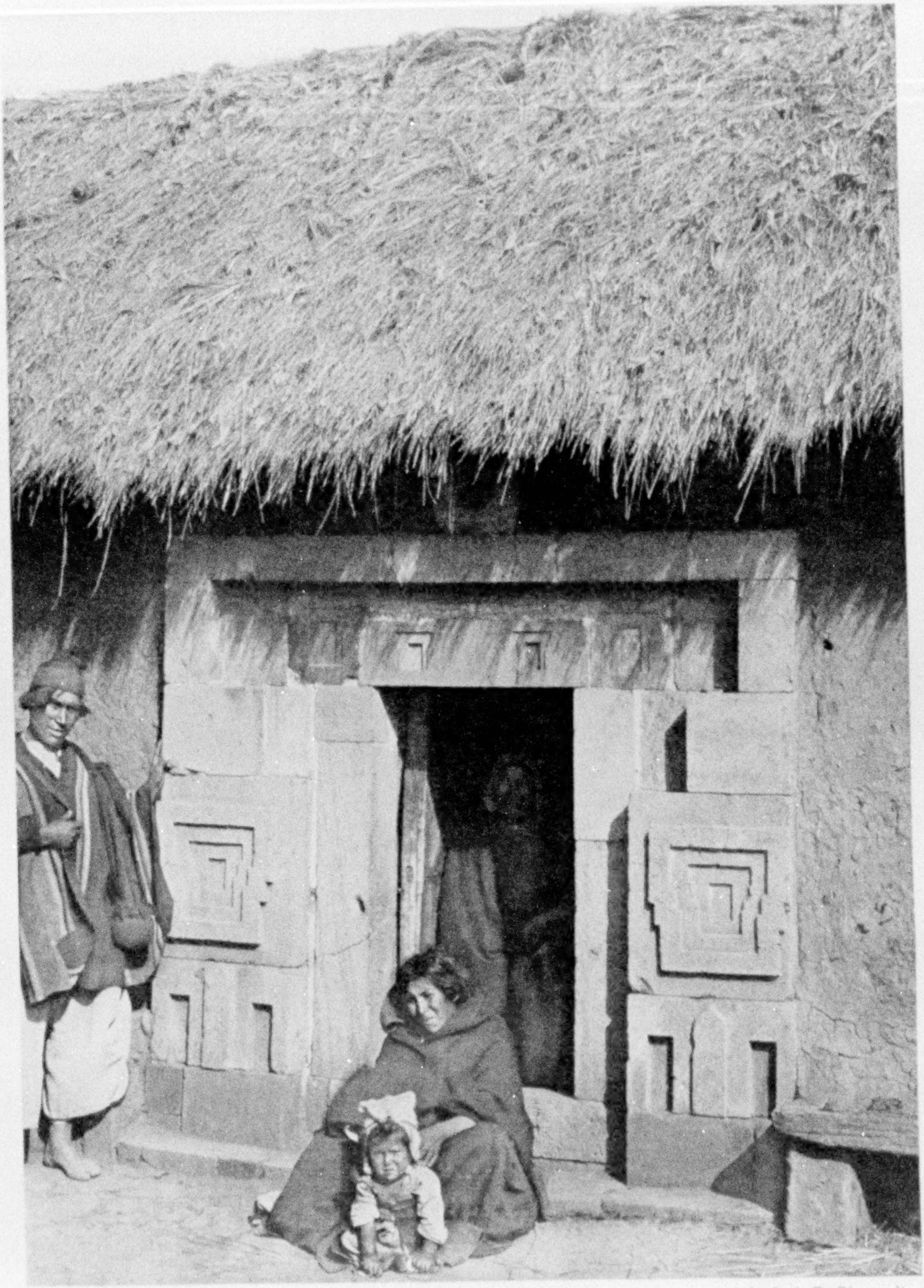
bear the likeness of a winged man, and all are crowned alike, being repetitions of a single figure. The middle row of figures on either side, consisting of 16, also a repetition of one figure, are like the others save for the head, which ends in a strong, curved beak, representing the condor, royal bird of the Andes, now appearing on Bolivia's coat of arms.

According to a Tiahuanacotan legend, a giant condor bore the sun daily across the sky. The earliest pottery of the region shows this, and sometimes also a great condor in conflict with a jaguar or puma, typifying the conflict between Day and Night.

The figure of the Sun God rests upon a carved throne, below which another row of a different series of 16 carved characters extends across the stone from side to side just over the doorway. These consist of small heads similar to the god's save that the features are in flat relief. Each is flanked by four condors' heads in plain relief, two pointing toward and two away from the face.

A COMPLICATED SYMBOLIC FIGURE

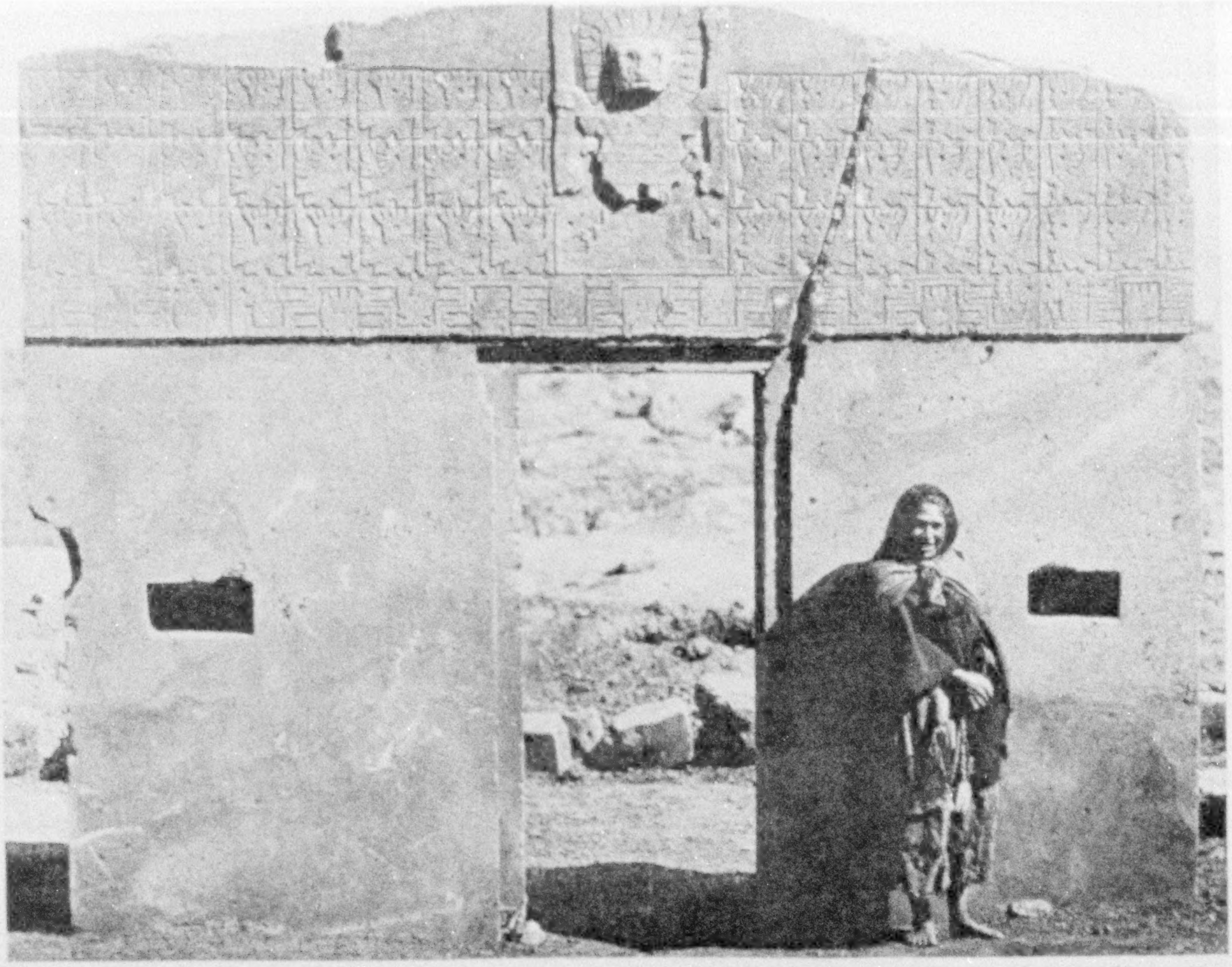
Thus far all savants visiting Tiahuanacu have failed to decipher the full meaning of the allegories and symbols of this celebrated monument.



Photograph by Luis D. Gismondi

HE HAS BUILT HIS HUMBLE SHACK FROM THE TEMPLE RUINS OF HIS ANCESTORS

The Spaniards used cartloads of stone from the ruins of hoary Tiahuanacu for building churches, and the Indians have borne away nearly everything else movable for doorways to their barley-thatched huts.



Photograph by Luis D. Gismondi

A MASTERPIECE OF PRIMITIVE CARVING

Many students of antiquity aver that no better piece of stone-cutting exists in the New World than this striking Gateway of the Sun, in the Kalasasaya ruins of Tiahuanacu. It was shaped whole from gray volcanic rock, but the upper section, at the top of the doorway, was probably broken through by a bolt of lightning (see, also, text, page 235). Its intricate carved allegories and symbols have not yet been definitely deciphered.

One investigator has hazarded the surmise that the sun is here suggested bearing the double scepter of heat and light, with which he vivifies and dominates the world; that the crowned figures are of kings running toward him or the planets, his subalterns. They bear their own scepters of power, but are subject to him, and their power is limited to that which each can wield in the solar system, while the great Sun God dominates them all.

According to this theory, the condors are messengers or ministers—comets, stars, and various planets more rapid than the others in their flight through space.

East and west of Kalasasaya are several other ruins, neither so extensive nor well preserved. Some individual specimens are especially interesting, however. One is a sacrificial stone, nearly square, hollowed in the center, and with a groove which suggests that it may have been designed to accommodate the head and neck of sacrificial victims, probably sheep or young llamas, judging by the height of the aperture from the monument's base.

The ground has been cultivated up to the very margins of the ruins, while here and there great slabs recline or stand sturdily erect in the yellow barley stubble. Heavy doorways and their lintels have stood well where left alone, but most of them have been taken away to form entrances to Indian huts (see illustration, page 237).

THE MELANCHOLY CHARM OF RUINED AGE

Somehow, weathered thatches of the present-day village, with its mud houses, blend into the landscape and seem to intensify one's realization of Tiahuanacu's hoary age.

Photograph by Luis D. Gismondi

GIANT GUARDIANS OF THE PAST

Among the remarkable features of Tiahuanacu's ruins are stone idols of heroes and divinities, some being more than eight feet high and of such size that they cannot be encircled with the two arms (see, also, illustration, page 241).

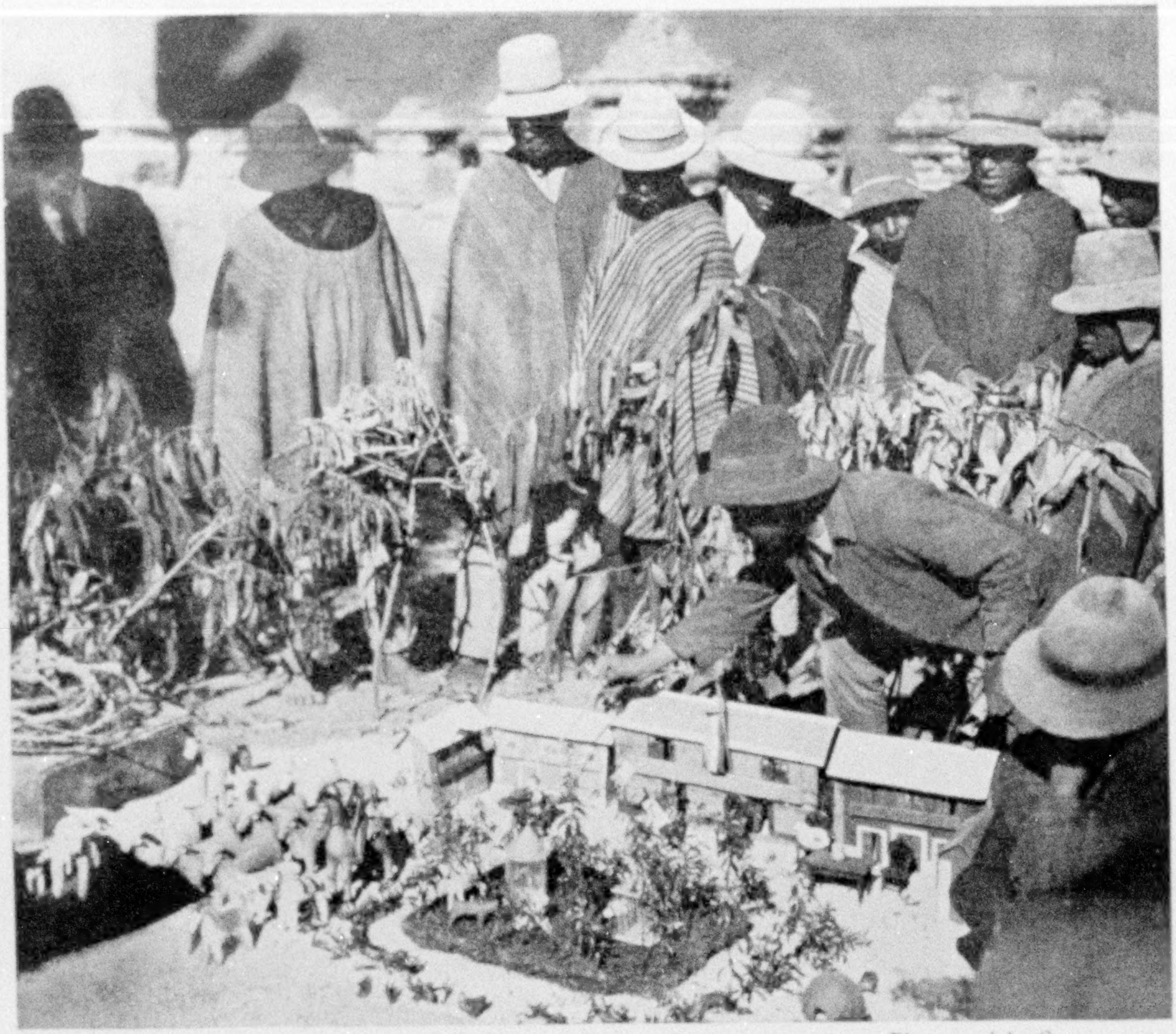
Away from the ruins, low mud fences lead everywhere, dividing tiny Indian properties. Here and there within mud-walled barnyards oxen and cows reflectively chew their cuds or nose around in heaps of barley straw. Down a narrow road come Indian women, brightly petticoated, driving strings of burros laden with barley sheaves. Donkeys, cattle, and sheep graze peacefully in lowland meadows.

A young shepherd drives his charge of white sheep and black, with a plentiful sprinkling of lambs, into a pasture and sits down against a rock to play a mournful, monotonous air on his *sicu* pipes (see illustrations, pages 217 and 245, and Color Plate XIV).

White and blue pigeons flutter about the thatched eaves of a hut.

An Aymará Indian drover with a train of llamas laden with llama-dung fuel starts off toward Illimani, bound for La Paz and its markets at the great snow giantess' foot.

Near me, facing north with gravely



Photograph by Gerstmann

THE TOY FAIR IN COPACABANA

The religious spectacle (see, also, illustration, page 247) is likewise a mixture of business and pleasure, for everything dear to the Aymará heart is offered for sale. These toy animals are used in certain native rites for the increase of the herds.

grotesque and unblinking face, stands, as he has done for possibly 20 centuries, a stone idol which the little boys of Tiahuanaco imitate in fashioning the monoliths which they sell to visitors. The Aztec-looking Sun God of Tiahuanacu keeps his mystic gaze upon the east and imperturbably guards the secret of the symbols flanking his figure. Tiny insect life hums and flutters about. A bluebottle fly settles on the god's nose (see illustration on opposite page).

What a tale those magnificent slabs, erect in the plowed ground or unturned barley stubble, could tell if only they might have tongues! I pace one of the pillars west of Kalasasaya and find it approximately 6 feet broad by 3 feet long; it is 12 feet high. This is the average for these single worked stones left standing upright in the ground. The upper and joining pieces, or lintels, have fallen.

AN ARCHITECTURAL LABYRINTH

The other section of Tiahuanacu's ruins, known as Tunca-puncu (literally, The Ten Doors), is nearly a mile southwest of the others (see illustration, page 242).

The ruins lie upon a hill made by artificial means. It is about 50 feet above the surrounding plain, and the mound, perhaps 150 feet square, slopes inward on all sides toward the east.

The sides and most of the top of the hill are now under cultivation and probably have been for hundreds of years; yet the contours are still so uniform and clear that it seems obvious it must have

served as a seating place for a great audience intent on what was taking place in the structure near at hand.

Some believe that these ruins, known among archeologists in earlier times as the Palace of the Inca, once constituted a tribunal of justice. The four huge platforms, each made of a single stone, are supposed to have had ten lintels for ten doors, destined to support magnificent portals.

It is all an architectural labyrinth, but the sculptured faces and the deities, which could be moved with tolerable ease, have been taken away; so that heroes and divinities, with other attractive smaller pieces, are no longer there. One must seek them in museums and in the neighboring Indian homes.

The main parts of the rear of the temple must have been in great sections. Four well-defined ones are standing, and another, left unfinished, judging by the tracings, seems to have been added in Tiahuanacu's second epoch (see text, page 217). The sections were probably bolted together with copper bars, since the bolt and bar channels in the stone are still plain, but the two main sections of each unit have parted or sunk.

Photograph by Miller

PEERING THROUGH THE MIST OF AGES

"He keeps his mystic gaze upon the east and imperturbably guards the secret of the symbols flanking his figure" (see text, page 240). The Cubist features have been mutilated by rifle fire.

MYSTERIOUS AND BEAUTIFUL CARVINGS

I mention copper here because this metal was worked by the Tiahuanacotans. Small copper implements are still found in the ruins and the hills round about contain much copper ore.

Volcanic stones are here carved and cut and grooved into sharp relief in a way both mysterious and beautiful. While most are decorated with a design of a severe yet graceful pattern, others plainly had some utilitarian purpose.

There are pieces that appear to have been basins, having apertures at the bottoms through which water must have been discharged. There are plain and ornamented recesses which probably served as niches for idols to the sun, condor, jaguar, and other deities; and perhaps most interesting of all are the crosses, sculptured on the backs of great blocks of stone. One can speculate endlessly. Certainly the carving of these blocks, which occurred from one to two thousand

Photograph by Luis D. Gismondi

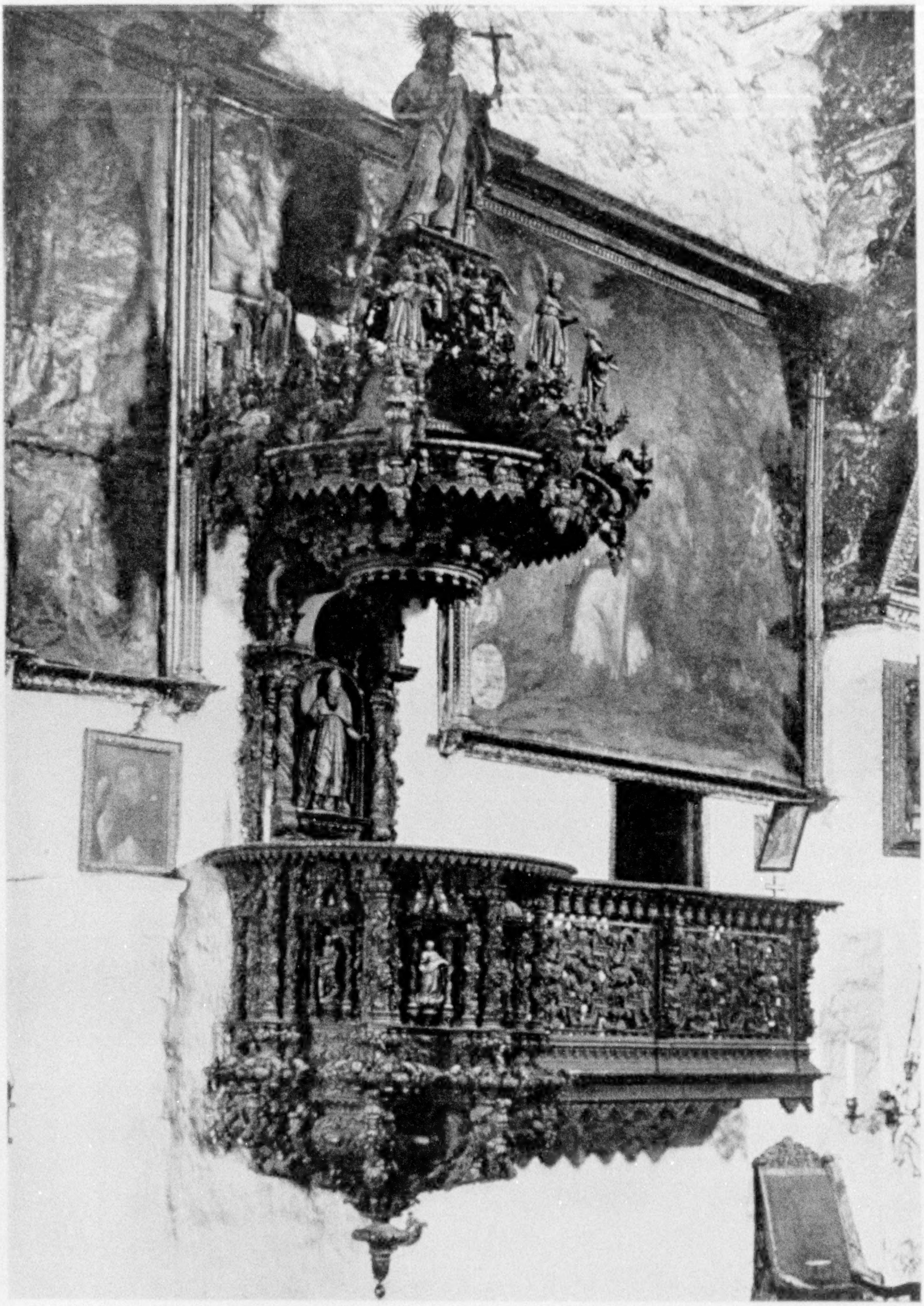
"BEYOND THE REACH OF HISTORY AND TRADITION"

Tiahuanacu, lying under a light blanket of July snow, is one of the oldest cities of the New World, where flourished the most advanced of the ancient American civilizations. This section of the ruins is "El Palacio," known in history as Tunca-puncu (literally, The Ten Doors), and seems to have been a tribunal of justice, judging from the thronelike stones (see, also, text, page 240).

Photograph by Luis D. Gismondi

THE ISLANDS OF LAKE TITICACA ARE THE BIRTHPLACE OF INCA MYTH AND LEGEND

Popular tradition points to the Island of the Sun (Isla del Sol) as the earliest home of Manco Capac, born of the Sun God and founder of the Inca race. This, the larger of the cobalt lake's two sacred islands, is still looked upon with reverence by the Indians because of its ruined temples and palaces. In the middle foreground is one of the several boats which were built abroad, taken down, shipped to a Pacific seaport, carried in sections over the mountains, and assembled at one of the lake ports (see, also, text, page 256).



Photograph by Luis D. Gismondi

THE CARVED TREASURE OF SAN BLAS CHURCH, AT CUZCO

There is said to be a church for every thousand inhabitants in the ancient Inca capital of Peru, which was plundered by Pizarro, but none other than this little chapel can boast possession of one of the finest wood pulpits in the world. This elaborate masterpiece, carved by Inca descendants, is valued at many thousands of dollars.

"MERRY WIDOW" HEADGEAR ENLIVENS THE HOLIDAY DANCE

On festival occasions the men of Tiahuanaco come forth, wearing a dazzling head covering of multicolored macaw feathers, bright cloth, and tinsel, and perform a shuffling dance to the accompaniment of drums and reed pipes (see, also, illustration, page 217, and Color Plate XIV). The players often imbibe too freely of their favorite beverage, *chicha*.

Photographs by José N. Pierola

TRANSPORTATION IN SANTA CRUZ, BOLIVIA

The unpaved streets in this town are deep in sand, except when flooded by torrential summer rains; but progress has penetrated even its isolation in the heart of the eastern lowland, in the form of a recently established air-mail service with Cochabamba, the second city of the republic.

years ago, has nothing to do with the symbol introduced into Latin America with Christianity.

These crosses are about 20 x 14 inches and may have been a detail in architecture, serving in place of masonry, since the reverse sides of the same blocks bear notches corresponding in dimensions to the lower part of the crosses.

PRIMITIVE POTTERS USED THE SWASTIKA CROSS

Perhaps one of the most interesting coincidences is the occurrence of another form of cross, the swastika. While this type is not seen often in the architecture, it occurs in almost every form of the potter's art which has been excavated from the first epoch of Tiahuanacu's ruins. If the capital has the age some students claim for it, here are some of the first examples obtainable of the use of this well-known good-luck or religious symbol. It is worthy of serious study and occurs so often in Tiahuanacu ceramics that ample examples are available.

Among all the Tiahuanacu ruins gray volcanic rock predominates. Probably the material for the capital was brought on great *balsa* rafts (see Color Plate I) from the sides of a near-by volcano. No one seems to understand how these gigantic rocks were chiseled so well through their flinty texture. They seem as if they might have been planed and beveled, so fine of line are they.

Considering the first of two different civilizations into which the history of Tiahuanacu is divided, the earlier Tiahuanacu was once, in all probability, the capital of a great nation whose dominion extended over a vast territory. It must have been devastated by the warlike invaders of the second period, who leveled everything after conquering the city.

These were the Aymarás, ancestors of the present tribe, and a word of explanation is necessary here in order to avoid confusion.

Aymará, it is generally granted, was the tongue of the ancient Tiahuanacotan, the one spoken on the Bolivian plateau since the beginning of human life there; but the Aymará language must not be confounded with the race of that name. The invaders themselves are supposed to have been conquered by the language and later took their name from it (see, also, text, page 216).

If the Aymará-speaking nation had not been so numerous and covered so much territory, its language, so it is said, would have mixed with that of the victors or have been lost altogether, and theirs should have predominated, since the introduction of its language is one of the first cares of a conquering race, and only a name would have remained.

While the Quichua, perhaps more closely related to the original inhabitants of the country, was and is inclined to be docile, submissive, and obedient, the Aymará, immediate descendant of the conquerors, is jealous of his liberty, proud, stern, and turbulent.

To-day the pure Aymarás do not number more than 450,000—the Pacasas, Sicasicas, Omasuyos, Yuncas, Larecajas, and Carangas—yet they dominate the Bolivian Indian. The Aymará is warlike by nature and wedded to the soil only through the physical necessities of the stomach, taking but poorly to governmental restrictions of any kind.

The Aymarás of Tiahuanaco have little sentiment. Mud fences full of bits of human bone and fragments of pottery have been erected in fields where men fell during invasions.

THE INCAS DISPLAYED SURGICAL SKILL

In spite of the dry air, it is natural to suppose that few of the well-preserved remains now existing belong to ancient times. A mahogany-brown skull has been found which was probably a relic of early Inca times.

The Incas were great believers in trepanning. Apparently they thought that if a doctor removed a bit of the skull or tapped a hole in it a headache would be relieved and kindred disorders assuaged. Many of the skulls found in out-of-the-way spots upon the Bolivian plateau and about the old lake district bear a little round hole in the forehead, indicating that the owner once sought relief from a native doctor.*

The Incas had another favorite operation, that of deforming the skull. By a

* See, also, in the NATIONAL GEOGRAPHIC MAGAZINE, "The Story of Machu Picchu," February, 1915, and "Further Explorations in the Land of the Incas," May, 1916, by Hiram Bingham.

Photograph by Gerstmann

SOUTH AMERICA'S GREATEST SHRINE IN A MOUNTAIN-GIRT SETTING

Before the celebrated shrine of the Virgin of Copacabana, a little town on the peninsula of that name which juts out into Lake Titicaca, Indians from Bolivia, Peru, and elsewhere stage a vivid pageant every August, just before planting time. The pilgrims ask the Virgin's blessing on the fruitfulness of their fields and herds (see text, page 213).

Photograph by José N. Pierola

COMMUNITY SEEDING IS A SURVIVAL OF INCA TIMES

It is the potato-planting season near La Paz, and enthusiasm engendered by working together relieves the monotony of hard tasks performed at an altitude of 13,400 feet, in the Viacha Valley (see, also, Color Plate II). The early home of the potato was in the Peruvian Andes, and the present-day value of a single world crop of this Indian gift to mankind probably exceeds that of all the gold that the conquerors took from the Incas. (See, also, "Staircase Farms of the Ancients," by O. F. Cook, in the NATIONAL GEOGRAPHIC MAGAZINE for May, 1916.)

Photograph by Gerstmann

A PRIMITIVE TYPE OF WATER CRAFT ON LAKE TITICACA

Centuries ago the lake dwellers learned how to dry giant bulrushes and to fashion them into these picturesque canoes (see, also, Color Plate I). Many of the *balsas*, which are large enough to use in ferrying live stock or passengers across arms of the lake, become water-logged after six months. The long pole lying athwart the boat to the right can be used as an oar when there is no wind for the reed sail, or to push the craft through the shallows. The Indians take care not to fall overboard, for few know how to swim and the waters of the lake are extremely cold.

Photograph by Luis D. Gismondi

AN INDIAN BOY OF BOLIVIA

He holds the plaited alpaca wool rope common all over Bolivia as cordage. It is used for hawsers on vessels plying Lake Titicaca, and by porters in securing the heavy loads which they carry from railway stations to mercantile houses (see, also, Color Plate XII).

Photograph by W. Robert Moore

CUZCO'S PLAZA FROM A TOWER OF LA COMPAÑÍA

Formerly a church and convent (see, also, Color Plate VI), this university looks toward the Hill of Sacsahuaman and its ancient fortress, whose three walls of Cyclopean bowlders were once an impregnable defense for the Inca capital in the valley at their feet.

Photograph by Ewing Galloway

WHERE THE PRIMITIVE ENGINEER GREETS THE EXPERT

This native bridge spans a stream along the Huancayo branch of the highest railroad in the world, the Central of Peru. The latter, a remarkable feat of railway engineering, climbs from the Pacific coast to a height of 15,865 feet. When completed, it will form part of the Pan American system.

Photograph from Ernest Peterffy

AN ANTEDILUVIAN GIANT OF PERU'S GARDEN OF THE GODS

This area of weird rock formations lies in the heart of the Andes near the copper mines of Cerro de Pasco, and surpasses in size and wonder Colorado's similar garden. Marine shells scattered about show that this region was once an inland sea. On one edge is a mountain of rock salt so clear that a newspaper can be read through two inches of it.

Photograph by A. A. Hauff

HERRADURA BEACH IS A SUMMER RESORT FOR THE PERUVIAN CAPITAL

Heavy fogs in winter drive many of Lima's residents inland, but in the warm days they patronize the resorts on the Bay of Chorillos, nine miles south, where bathing, regattas, and water sports are popular.

Photograph by A. A. Hauff

A GARDEN SPOT OF SOUTHERN PERU, NEAR AREQUIPA

The Chile River here runs through a valley of perpetual green walled in by the arid Andes of the coast desert. This fertile oasis grows nearly every fruit that can be raised in the United States.

system of binding, the top of the head was pressed back and down and the base forced upward. The forehead was considered the seat of individuality and initiative, and anything done to suppress its growth encouraged devotion to the needs of the mass and the public welfare.

The cathedral of Tiahuanaco, with its lofty nave and red-tiled double apse reaching to a level with the big front tower, is worthy of mention. Just how ancient it is is difficult to learn, for Spanish historians differ, but Spain's clericals were quick to establish priests and erect churches following the Conquest, and towns of the lake district were among the first, after Cuzco, to receive such attention. It is likely, therefore, that the cathedral of Tiahuanaco is from 300 to 350 years old (see illustration, page 236).

It contains no seats or benches. Worshipers kneel on the stones with which the ground is roughly paved, or before the harsh boarding in front of the enormous altar of hammered silver. Of the 26 old Spanish paintings upon the walls, depicting various happenings and teachings in the life of our Lord, 17 are very large, nearly 12 by 15 feet.

THE FOOTBALL INVADES HISTORY

Outside the church gates stand two great idols fashioned among the Tiahuanacu ruins. While I stood in contemplation before one of them, suddenly a very modern football landed upon its worn stone nose and bounced off into the eager arms of ragged little boys playing in the square between the church and market place. History was far from their thoughts.

As we were leaving Tiahuanacu small boys grew clamorous in their desire to sell us *monolitos*. We bought many, ranging from 5 to 35 cents (about 2 to 12 American pennies) each, depending on their size and excellence of workmanship. The carvings, which consisted chiefly of two of the best idols, were in the likeness of the jaguar, and had been done in soapstone from the adjacent mountains. When this soft stone is long exposed to the air, it grows harder, and the efforts of the youthful sculptors often result in rather good and lasting work.

It is a 14-mile hike to Guaqui port, and we started off at 9 o'clock in the morning with two boys driving a well-laden burro.

At 12:30 we were in old Spanish Guaqui, and a half hour later we had reached its lake port, two miles farther on.

Save for the railway station, a small hotel, quarters for a regiment of infantry, and the customhouse, there is very little to the port. Its importance has steadily decreased since the opening, some years ago, of a quick railway service between La Paz and Arica, Chile; so that a great part of the freight and passenger traffic formerly landing at Mollendo and reaching La Paz via Lake Titicaca no longer comes over that route.

THE WORLD'S HIGHEST NAVIGABLE LAKE

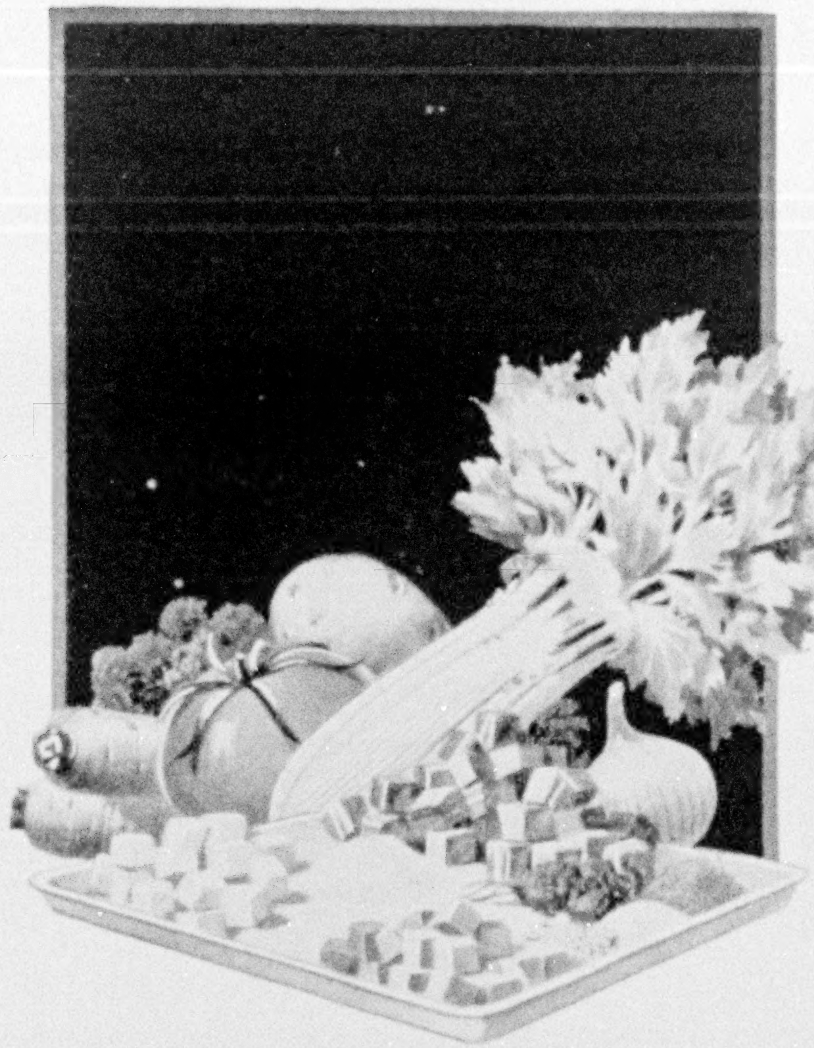
Three steamers ply the waters of Titicaca between Guaqui, in Bolivia, and the port of Puno, Peru. The largest, the *Inca*, 228 feet long, with 30-foot beam, was built in Hull, England, brought to the Bolivian plateau in sections, assembled there, and then put into service on Titicaca, the world's highest navigable lake (see illustration, page 243).

But we travelers in Aymará Land had no ambition to take one of these steamers to Copacabana, for this would have meant a delay of two or three days in Guaqui; so we negotiated for a sailing vessel.

We were not as well versed then either about geography or about the Aymará mind as we were soon to become, and when a coppery-tinted son of Belial promised that his boat would land us without fail in Copacabana harbor before sunset, we believed him and went to lunch in the Guaqui hostelry with light hearts. What we should have done was to have tied a rock about his neck and dropped him into the lake some 200 feet from shore, where the cows of the port could have trampled him into the mud on their way out to feed in the reed marshes.

That, however, is another story—a trying prelude to our journey to one of the world's greatest shrines, Mary, the Virgin of Copacabana (see, also, text, page 213), and to the Islands of the Sun and Moon, set like gems in that great cobalt-tinted lake, earliest seats of the old Inca rulers, who created a mighty empire before the advent of the Spaniards.

Our minds were still too full of ancient Tiahuanacu to deal adequately with the intricacies of the Aymará mind in Aymará Land.



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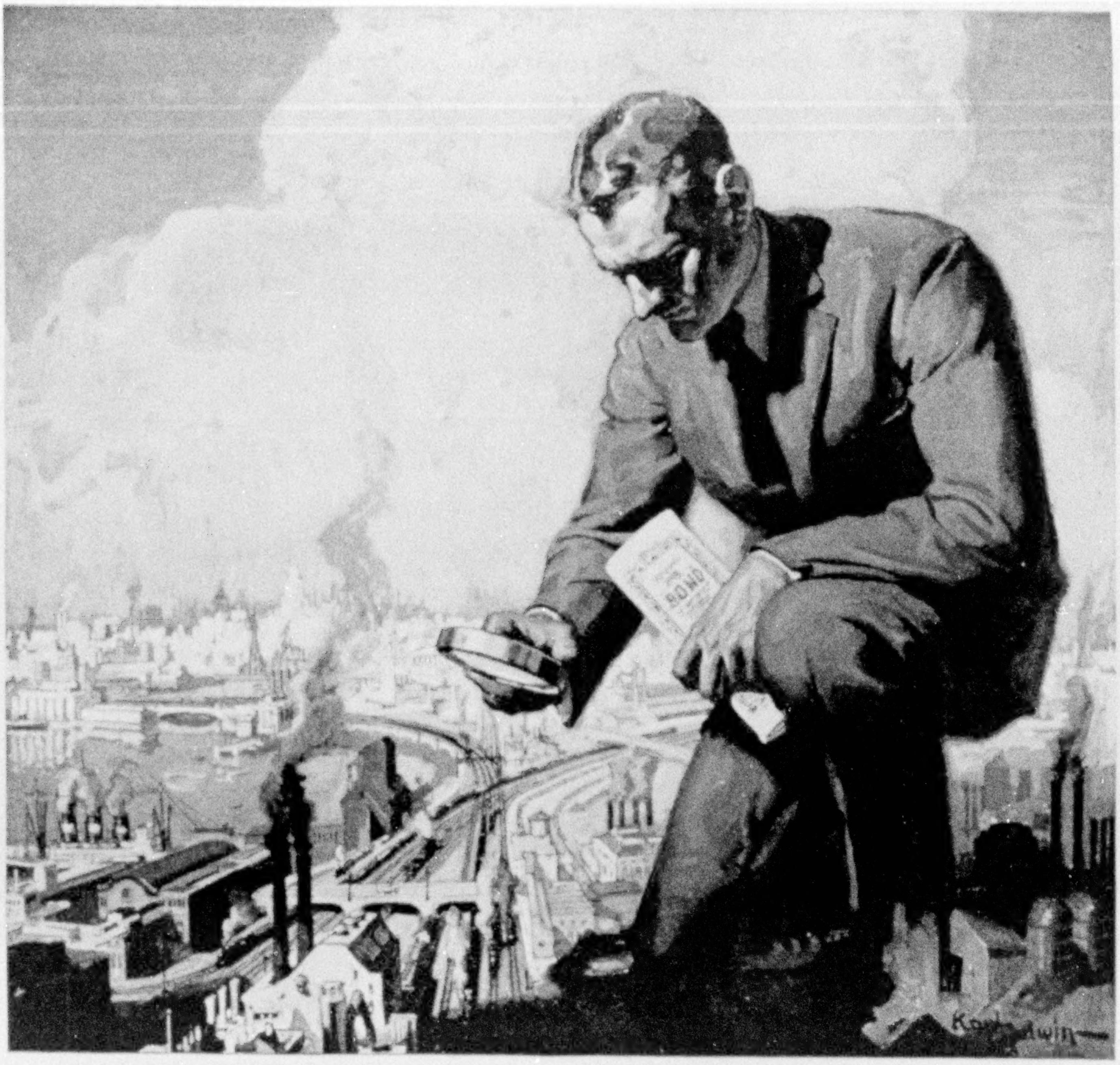

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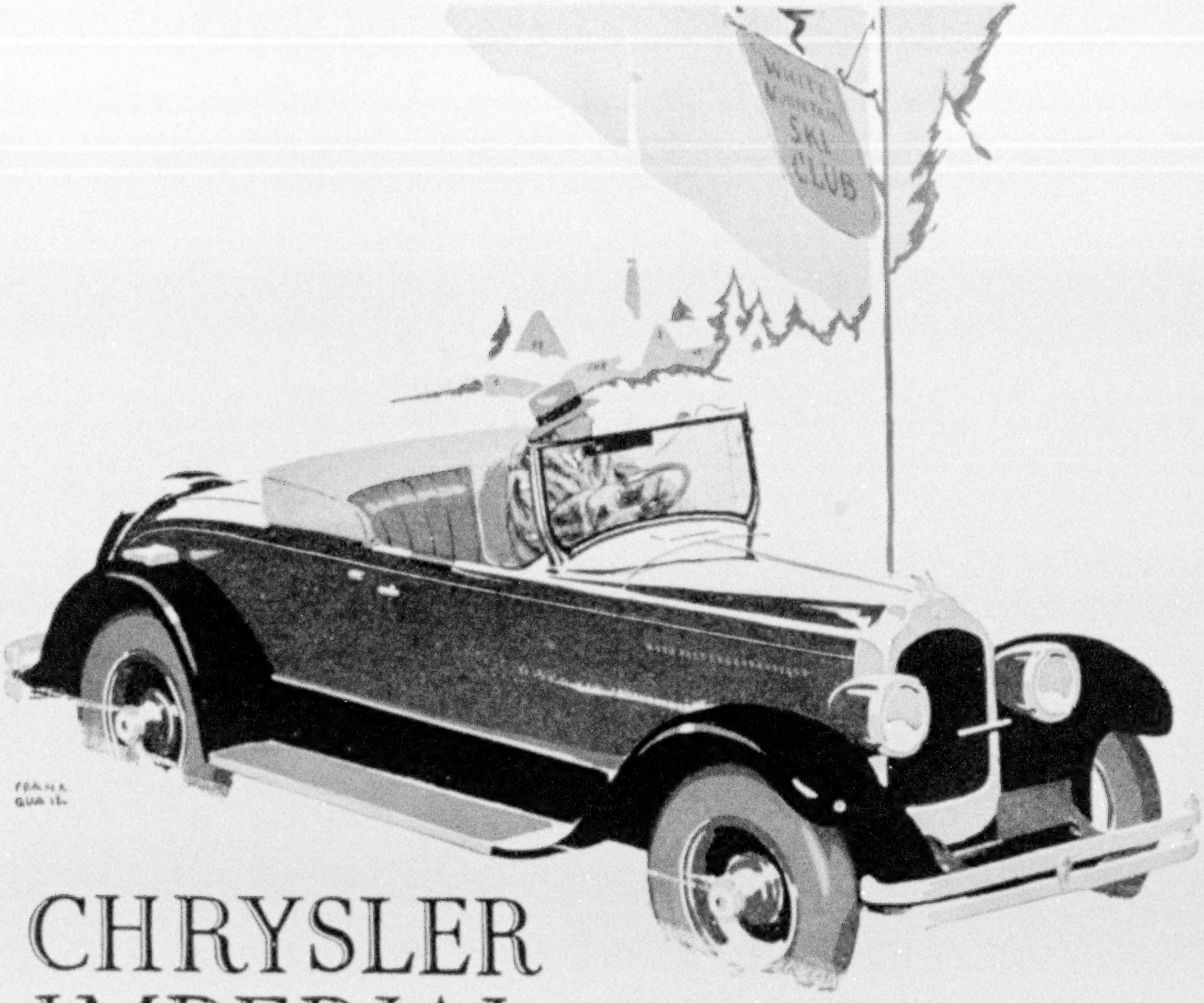

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The Chrysler plan of Quality Standardization differs from, and is superior to, ordinary manufacturing practice and methods, because it demands fixed and inflexible quality standards which enforce the same scrupulously close limits—the same rigid rule of engineering exactness—the same absolute accuracy and precision of alignment and assemblage—in the measurement, the machining and the manufacturing of every part, practice and process in four lines of Chrysler cars—"50", "60", "70", and Imperial "80"—so that each individual car shall be the Supreme Value in its own class.

Eight body styles, priced from $2495 to $3595, f. o. b. Detroit, subject to current Federal excise tax.

No matter how much you may admire the car you now own, the Chrysler Imperial "80" offers a decidedly *new* and *unique* adventure in joyous motoring.

From the moment of your initial experience in the Imperial "80" you will be satisfied with nothing less.

In speed, power, smoothness, luxury of appointment, riding and driving ease, the Imperial "80" is a challenge to you to be dissatisfied with the conventional and the commonplace.

It is an invitation to know the sheer delight of stepping from the finest car of yesterday to the *finest that money can build.*

CHRYSLER MODEL NUMBERS MEAN MILES PER HOUR

57

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"That's It!"

How the eye of the man who knows lights up when the waiter sets the familiar Heinz Ketchup before him!

He knows that whatever else is served to him will be good—that the best places serve the best—therefore Heinz Tomato Ketchup.

His wife knows it, too. So she sees to it that the home table is graced with this same *quality* condiment which looks so good and tastes so good—always.

HEINZ

TOMATO KETCHUP

The taste is the test

H. J. HEINZ COMPANY

WHEN IN PITTSBURGH VISIT THE HEINZ KITCHENS

Frigidaire keeps food fresh

regardless of every change in weather

WINTER weather is never a safe substitute for refrigeration. Outdoor temperatures change from day to day. Icy cold days, *too cold* for proper food preservation, are often followed by days so mild that foods of all kinds may spoil very rapidly.

With Frigidaire Electric Refrigeration in your home you will be protected against every change in weather. Day and night, and day after day, your foods will be kept at low, even temperatures—fresh, pure and wholesome, retaining all of their original flavor. You will enjoy the better, more convenient, more dependable, and more economical refrigeration that is now being enjoyed by more than 250,000 Frigidaire users.

New low prices have made the *value* of Frigidaire greater than ever before. Metal cabinet models are priced as low as $225—and mechanical units for installation in the standard makes of iceboxes as low as $170. (All prices f.o.b. Dayton.) The General Motors deferred payment plan affords the most convenient and economical way to buy.

Visit the nearest Frigidaire Sales Office and see Frigidaire in actual operation. Or mail the coupon below for a copy of the Frigidaire Catalog.

Frigidaire
PRODUCT of GENERAL MOTORS

FRIGIDAIRE CORPORATION
Dept. Y-39, Dayton, Ohio
Please send me a copy of the Frigidaire Catalog.

Name ....

Address ....

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Holy Man
Benares, India

Hindu Girl
South India

Hula Dancers
Hilo, Hawaii

These Graflex pictures by Howard B. MacDonald

Graflex photo by Tsoi Jonsan Canton, China

PICTURES *are* SECONDS SNATCHED *from* TIME

DRAMATIC things happen on dark days. Picturesque scenes spring up from shadows. They seldom wait on the convenience of the traveller's camera. They must be caught as they come or are lost forever. Consider the pictures reproduced here. Some were taken in vivid sunlight, others in deep shade. What camera could have caught them save the GRAFLEX? The same speed that made the sunlight pictures possible also made possible those caught in the shadows.

Pictures you would never attempt to take with an ordinary camera you confidently take with a GRAFLEX. On dark days or fair, indoors or out, on dull early mornings or late cloudy afternoons the GRAFLEX will serve you well on your travels.

The extra fast lens gathers more light; the shutter curtain admits more light; through the GRAFLEX hood you see, right side up, just what your picture will be—strong, clear and in focus. And GRAFLEX is simplicity itself to use. Set for light and action, then press one lever.

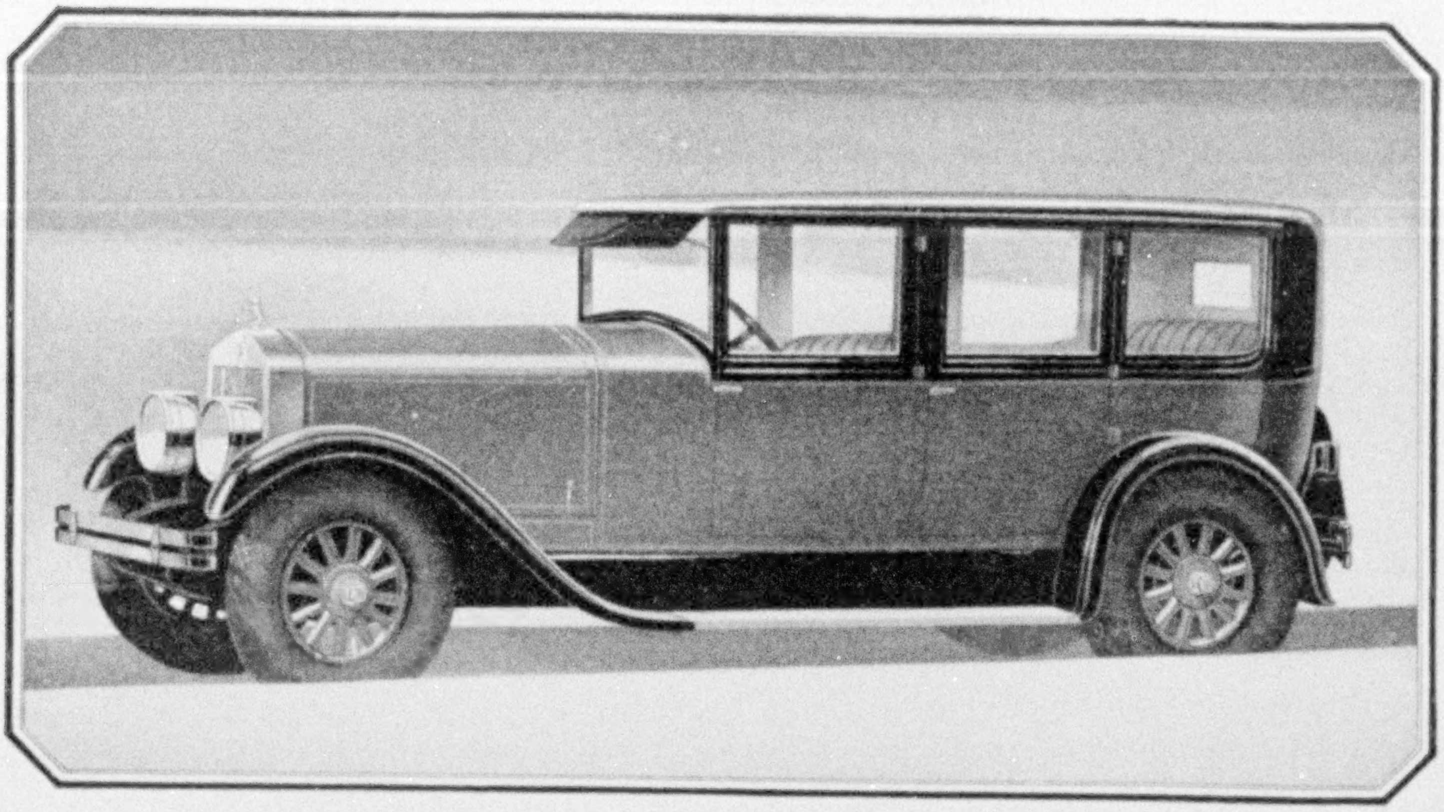
Compare its size to a Baedeker—and far easier to carry. Revolving back GRAFLEX series B with Kodak Anastigmat Lens—f 4.5. $85.

Other Models up to $260.

Ask your dealer to show you a GRAFLEX or write for booklet "G" direct to

FOLMER GRAFLEX CORPORATION
ROCHESTER, NEW YORK

Sold by Eastman Kodak Company Dealers



The 25th Anniversary Franklin

This great car is the climax of the Franklin policy of always keeping ahead

ON VIEW AT ALL DEALERSHIPS. *Now offered at the most favorable price in Franklin history, with a special 25th Anniversary Easy Ownership Plan also available.*

FRANKLIN

FULLY EQUIPPED F.O.B. SYRACUSE, N.Y. COUPÉ NOW $2490—SEDAN NOW $2790 OTHER TYPES IN PROPORTION

LEE *of Conshohocken*

YOU may not know or care what or where Conshohocken is; but if you own a car you ought to know and care who Lee is.

Conshohocken is a town; the Lee Tire & Rubber Company is one of its principal industries. A genius named Lee started it; he had the quality idea; a true craftsman.

Fifteen years ago Lee made the only real Puncture Proof tire; still making it. We make also the Shoulderbuilt balloon; the DeLuxe high pressure cord for passenger cars, trucks and buses; we're making them better all the time.

The one idea, always, has been to make as good a tire as the best materials and the most scientific methods can produce; to make your tire-money go farthest.

If you believe in this sort of spirit in your own product or service, you must believe in Lee Tires; and if you believe in them, you'll buy them.

LEE TIRE & RUBBER COMPANY
Conshohocken, Pa.

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MIMAX

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NASH

THE popularity of Nash cars is one of the outstanding features of the industry. Nash cars are finished with Mimax Lacquer.

Lacquer

This new-type finish, almost impossible to scratch, mar or scar, has widest range of application on manufactured products of almost every class and character.

Our Paint-Varnish-Lacquer Engineering Service offers scientific aid to manufacturers in solving every problem connected with the finishing of manufactured products. Write for Booklet.

Licensed Refinishing shops in every city will refinish your car.

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New Orleans

See it on your Way to
California

ALL the gorgeous revelry of France and old Madrid, joyous, carefree and colorful—a tale from the Arabian Nights which comes to life each year in America's most fascinating city.

Street parades and festivities February 24th to March 1st. Also many balls are given during February. See them on your way to California via

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A splendid, de luxe daily train New Orleans to Los Angeles, San Diego, and San Francisco. Stopovers at New Orleans allowed on all tickets via Sunset Route.

Club Car, Observation Car and latest type Dining and Sleeping Cars. Convenient service for the 120-mile motor side trip over the famous Apache Trail and for the marvelous Carriso Gorge.

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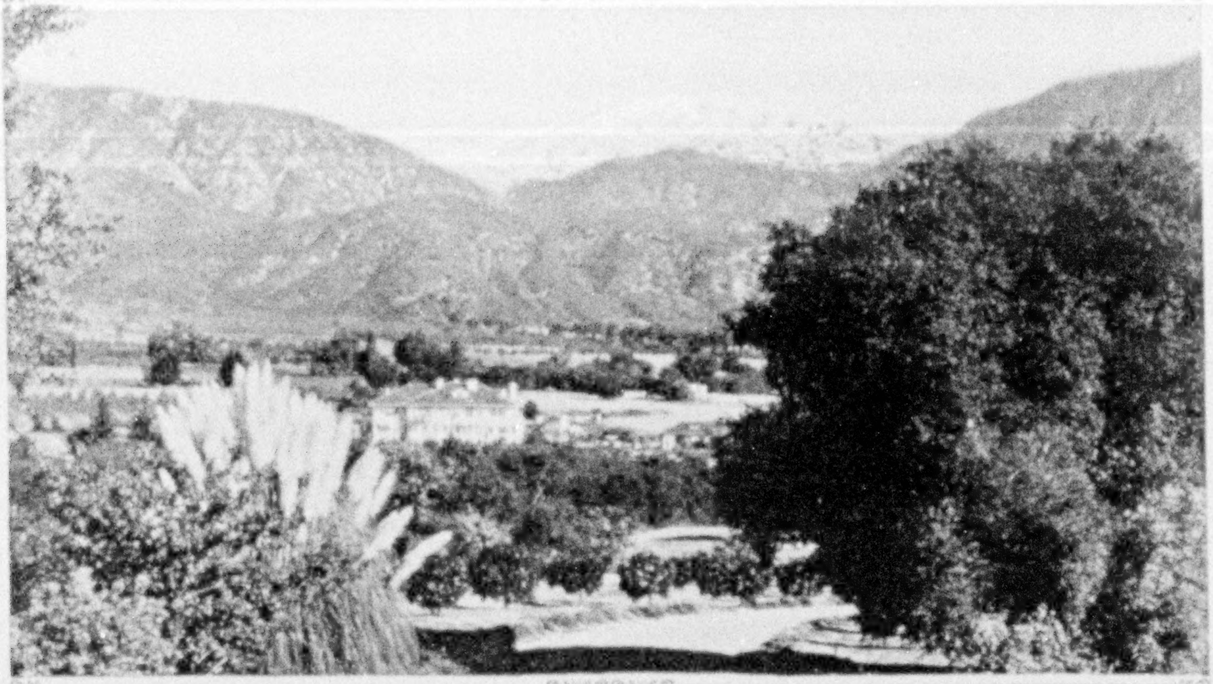
Sunset Route

SOUTHERN PACIFIC LINES

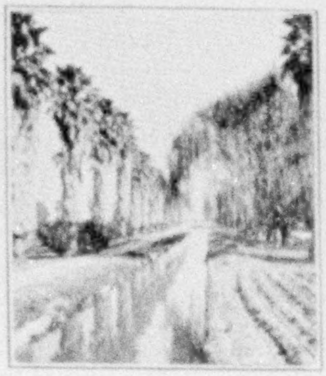


A landscape at Flintridge—near Pasadena

World's Greatest Playground

At Your Very Door

Parks everywhere



Palm-lined irrigation canals—Riverside County

And Southern California has a twelve-months "season" of gaiety and sport. So, whenever *you* are ready, *come!*

THE fun, like the foliage, is in "full bloom" in Southern California now—motor trips, fiestas, beach parties, golf, tennis, horseback riding, mountain climbing, camping, fishing, hunting—everything and anything that's pure, unadulterated joy!

Why wait? There's still time if you want to "winter" here—or string it out through April, May, June, and all summer if you wish.

For this is the great playground that's famous for its *Year 'Round* springtime—genially warm in "winter" as the gorgeous flowers, the sunshine and all these "Springtime-Winter sports" can testify. For summer, let the U. S. Weather Bureau speak through their *authentic records*—the average mean temperatures for June for *fifty years* have registered 66 degrees; 50 Julys, 70; 50 Augusts, 71; 50 Septembers, 69;—these records (not our own, but Uncle Sam's) were taken in Los Angeles, the central city of this favored land. And humidity is always low. No discomfort here that you've often felt from the damp heat of other climes.

Come as a sight-seer, a student, an artist, an educator, a sportsman, a scientist, or whatever you are, getting right into "your element" and doing those things that are peculiarly yours in the world's most ideal setting for them.

Come now or come this summer. When you plan your trip, arrange a circle tour to see the entire Pacific Coast from San Diego to Vancouver—your railroad ticket agent will explain. Low rates in effect on all railroads from May 15 to October 31.

Mail coupon below for new illustrated booklet.

Living costs and rates are very reasonable. There are hotels, furnished apartments and bungalows to suit every taste.

Southern California

All-Year Vacation Land Supreme

The city of Los Angeles, with a population of well over a million, is the largest city on the Pacific Coast and is the hub of one of the country's richest agricultural communities.

The growth, wealth and marvelous resources of Southern California are indicated by the following facts and figures pertaining to the County of Los Angeles alone:

Value of Agricultural and Live Stock Products (1925), $85,912,744; Value of Citrus Products (1925), $23,241,503; Oil Production (1925), 140,000,000 bbls.; Harbor Imports (1925), 4,156,177 tons; Harbor Exports (1925), 16,154,566 tons; total Harbor Tonnage, 20,310,743.

A producing season of 365 days a year permitting year 'round crops.

ALL-YEAR CLUB OF SOUTHERN CALIFORNIA,
Dept. 2-D, Chamber of Commerce Bldg., Los Angeles, California.

Please send me your free booklet about Southern California vacations. Also booklets telling especially of the attractions and opportunities in the counties which I have checked.

- ☐ *Los Angeles*
- ☐ *Orange*
- ☐ *San Bernardino*
- ☐ *Santa Barbara*
- ☐ *San Diego*
- ☐ *Riverside*
- ☐ *Ventura*

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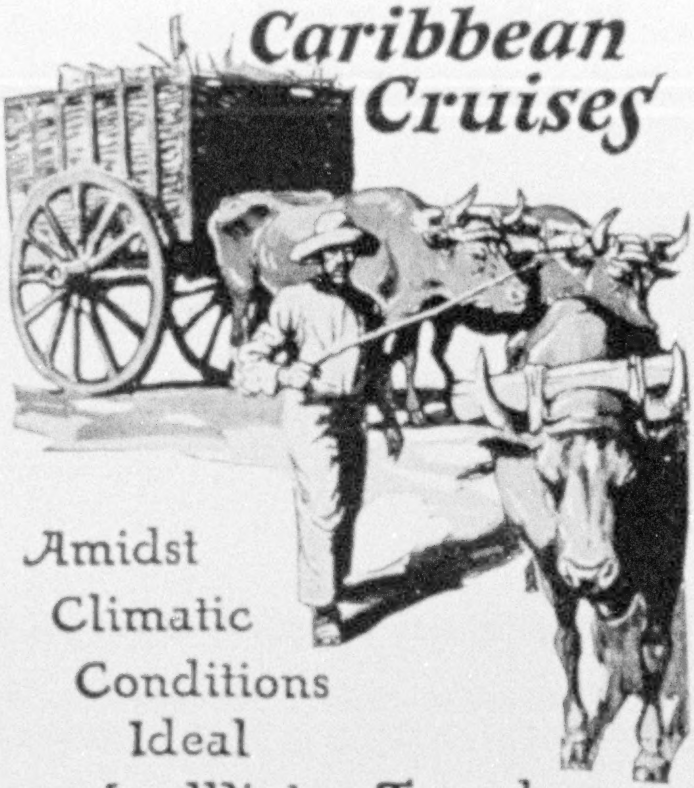
CUNARD

Caribbean Cruises



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Ideal
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Inclusive Fares $300 and up

From New York Jan. 22 to Feb. 22

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The Caledonia is a beautiful, modern ship, equipped with the new thermo tank ventilation system which supplies a current of cool fresh air—under the passenger's control—to every stateroom, an innovation of great comfort while cruising in the tropics. Electric fans in every room.

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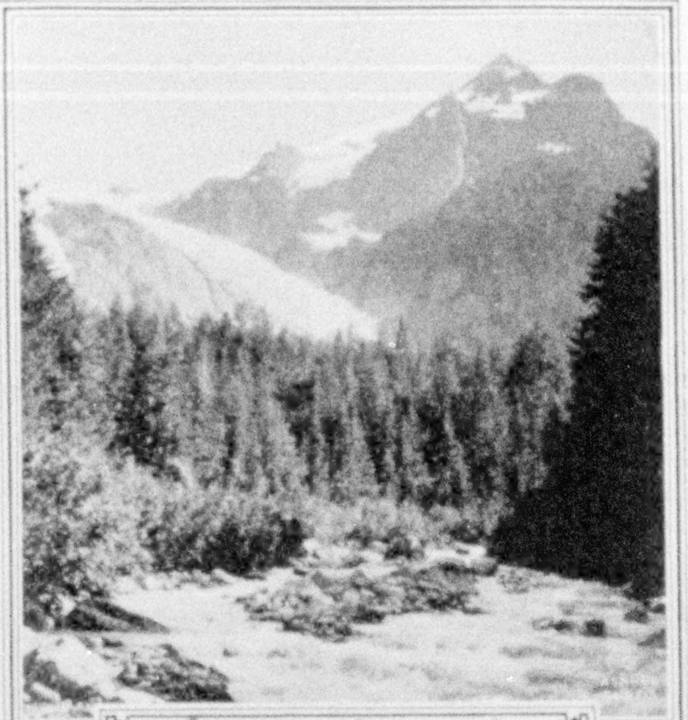

In the Olympic Mountains

Where "All Outdoors" Awaits You

SEE lofty mountains, rushing torrents and silvery waterfalls; wander through green forests of trees like Karnak columns; cruise over sparkling waters of a great inland sea; breathe the ozone of the woods and ocean; visit the rugged Olympic Mountains; enjoy in one vacation the variety that would otherwise require many tours.

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Far-famed RAINIER NATIONAL PARK, with its lordly peak, is reached directly by motor or rail from Tacoma, the closest city to it. The view of the Mountain from the city itself is pronounced by famous travelers one of the most wonderful the world affords. You'll find Tacoma a hospitable city with fine hotels and every accommodation.

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CHOOSE A CANADIAN NATIONAL VACATION THIS YEAR
Sail through sheltered scenic seas
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Land of Northern Lights, Colossal Glaciers, Flower-decked Fjords, Totem Poles, Romance, Mystery - - -
CRUISE through sheltered seas, sentinelled by majestic mountains and glittering glaciers, past primitive Indian villages with towering totem poles. Wind through the beautiful Lynn Canal. Visit en route Prince Rupert, Ketchikan, Wrangell, Juneau, Skagway.
$90
From Skagway go by rail to the Yukon—every mile of this historic trail has its story of romance and tragedy.
Fare only $90 including meals and berth from Vancouver to Skagway and return—a ten day trip on palatial Canadian National steamers—all outside rooms.
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NAT. GEO. 1

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Summer of 1927

37 Days for $385

YOU can go abroad for thirty-seven days or more, at modest expense, with the Art Crafts Guild Collegiate Tours. Our congenial parties are composed of college students, teachers, artists, club members, business and professional people—each party personally conducted. A dance orchestra from a famous American University accompanies each tour. Plenty of deck space on shipboard for dancing, games, rest and recreation. See England, Holland, Belgium, France—37 Days, All-Expense trip, personally conducted, $385.

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"World's Greatest Travel System"

Weekly sailings from Montreal and Quebec during June, July and August. Two days down the picturesque St. Lawrence. Only four days open sea. A week in London. Eight days in Paris. Three days in Ostend. Fascinating trips to English castles, the Shakespeare country, Oxford, The Hague, Bruges, the battle areas and other places famed in history and literature. Ample time for individual sight-seeing and shopping.

Tour price includes all necessary expenses on ship and shore. Extensions to Scotland, Ireland, Switzerland, Germany and Italy at the same low cost.

Collegiate Cruises to the

ORIENT

Sailing June 9 and June 30 from Vancouver, B. C.; visiting Japan, China and the Phillipines. All-Expense, 53 day cruise, $655 and $965. Write for illustrated literature giving complete detailed itineraries. Mention Europe or Orient.

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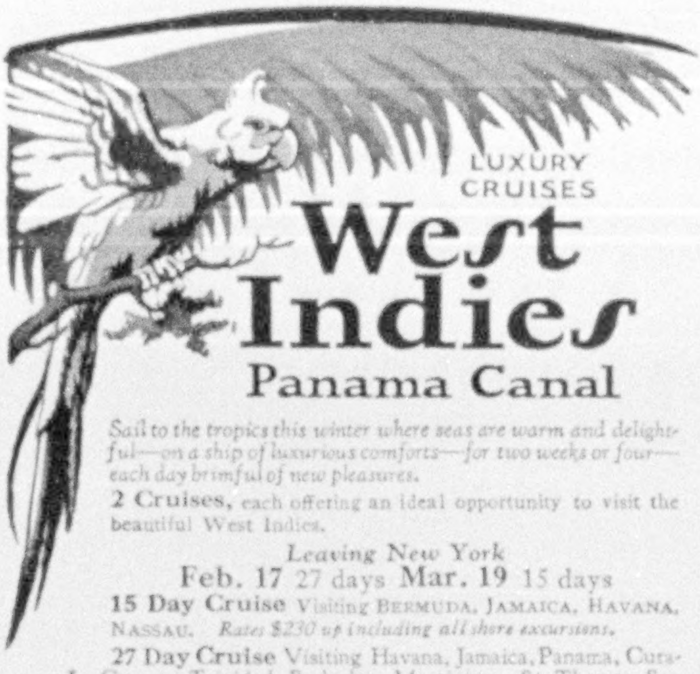
ART CRAFTS GUILD

Collegiate Tours



LUXURY CRUISES

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Panama Canal

Sail to the tropics this winter where seas are warm and delightful—on a ship of luxurious comforts—for two weeks or four—each day brimful of new pleasures.

2 Cruises, each offering an ideal opportunity to visit the beautiful West Indies.

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15 Day Cruise Visiting BERMUDA, JAMAICA, HAVANA, NASSAU. *Rates $230 up including all shore excursions.*

27 Day Cruise Visiting Havana, Jamaica, Panama, Curacao, La Guayra, Trinidad, Barbados, Martinique, St. Thomas, San Juan, Bermuda. *Rates $385 up including all shore excursions.*

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Enjoys universal prestige for the unexcelled luxury and comforts of her appointments, for her superlative cuisine, and for the exceptional character of service and management on board (*strictly 1st class*). Under the management of the *Holland-America Line* in cooperation with the *Frank Tourist Company.*

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Please send free Booklet and information.

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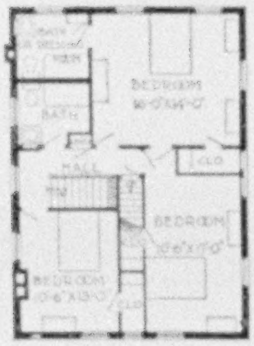
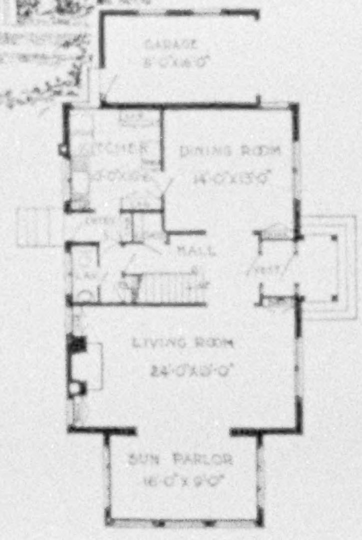
Six-Room House No. 631
One of many designed for the home-owner by the Service Department of American Face Brick Association.



SECOND FLOOR

Beauty That Endures



FIRST FLOOR

THE woman's eye will note the thoroughly practical interior arrangement and distinguished exterior of this Face Brick house. Time enhances the charm as age enriches the beauty of its color tones. The passing years exact little toll, for the Face Brick house is truly the permanent economical house. The "Story of Brick" contains interesting facts for the prospective home-builder—sent free on request.

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"Face Brick Bungalow and Small House Plans" embrace 128 designs of houses, unusual and distinctive in design, convenient in floor plan and economical to build. Four booklets showing 3 to 4-room, 5-room, 6-room, and 7 to 8-room houses. Each 25 cents. Entire set $1.00.

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Complete plans for all these houses available at nominal prices.

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Come to El Paso a thriving city of more than 100,000 people, for a vacation that's different. Come for our tourist attractions. Come for pleasure. Come for health. Excellent hotels. Schools. Theatres. Shops.

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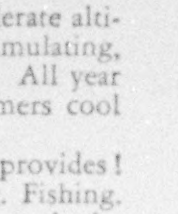

*Name*________________

*Address*________________ 116

Collegiate Cruises to the Orient
Summer of 1927

THE Art Crafts Guild Travel Bureau announces two collegiate Cruises to the Orient for the summer of 1927. The first sails June 9, on S. S. *Empress of Aisa,* from Vancouver; returning to Vancouver on July 31. The second sails June 30, on S. S. *Empress of Canada,* from Vancouver; returning to Vancouver on August 21. Cruise visits the Philippines, Japan and China. We go via Canadian Pacific; and an American University dance band sails with each cruise—as on our European Tours. Prices: $655 for Second Class steamship accommodations and $985 for First Class steamship accommodations. Length of cruise 53 days. Prices include all necessary expenses from Vancouver back to Vancouver. Write for illustrated itinerary.

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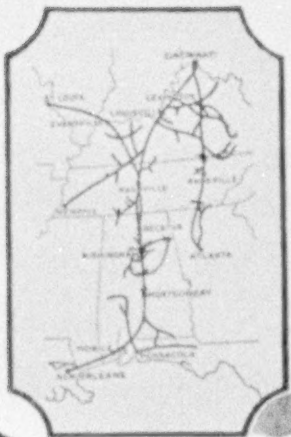
THIS historic land of delightful winters and all-year charm beckons you to its sun-warmed shores, where snow and ice are never known, where majestic pines wave their lofty heads over semi-tropical vegetation of gorgeous verdure, where golf, motoring, hunting, fishing, boating and other outdoor sports are at their finest and where splendid big hotels house you in every comfort and at moderate cost. The Gulf Coast is the Riveria of America, and teems with history, mystery and romance—a vacation paradise of unequalled charm.

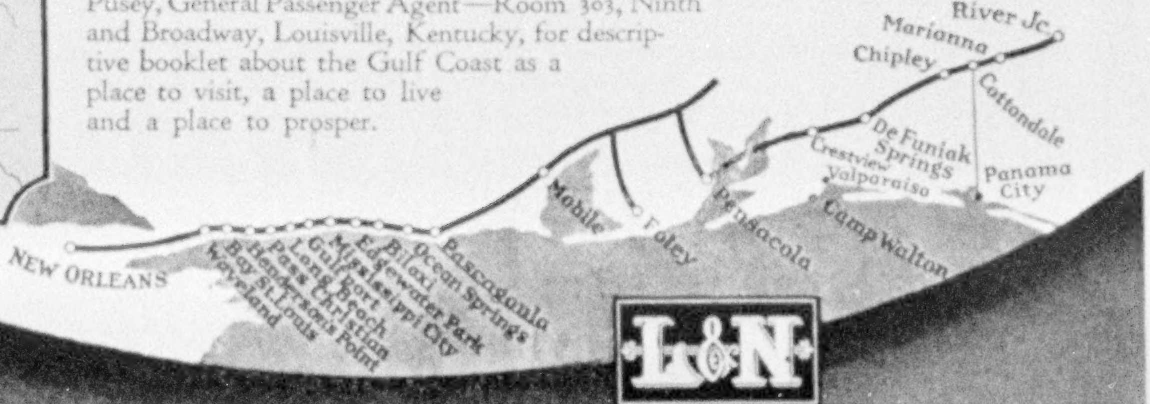
Visit the Gulf Coast for pleasure and health—maybe you'll decide to stay in this land of great promise and immediate opportunity, for no other section of the rapidly growing South is building on sounder, more conservative lines—homes are being built on the Gulf Coast for winter occupancy or year round habitation, new businesses and industries are being started and old establishments are "spreading out."

Nearby to the big cities of New Orleans, Pensacola and Mobile the winter visitor finds splendid train service and excellent motor roads to all these points of world wide tourist interest. The Carnival or Mardi Gras (from Thursday, February 24th to Tuesday, March 1st—Carnival day) is presided over by the Lord of Misrule who governs with regal splendor furnishing a never-to-be-forgotten event and one nowhere to be seen save in these charming old world cities.



Ask for Information

See your nearest L & N Ticket Agent or write to R. D. Pusey, General Passenger Agent—Room 303, Ninth and Broadway, Louisville, Kentucky, for descriptive booklet about the Gulf Coast as a place to visit, a place to live and a place to prosper.



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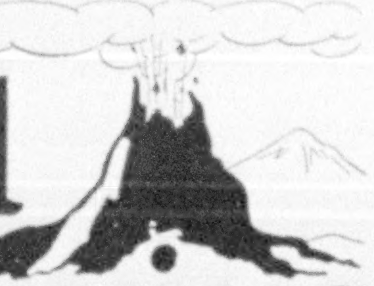

Will Vesuvius Break Loose Again?

Recently it has been threatening. How many times has this sinister peak showered its frightfulness upon those below? What is its record of tragedy?

When a relic of great antiquity is unearthed in Egypt, when a disaster takes place in China, a great Moslem movement begins, when explorers invade the wild places of the earth; for full, up-to-date information about all such places and their peoples, their history and customs, you should have at hand

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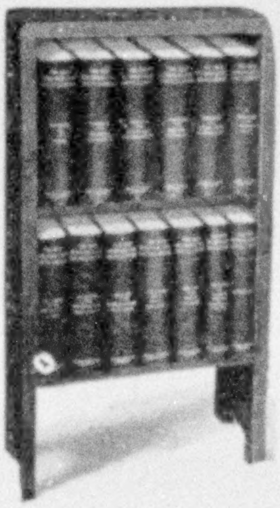

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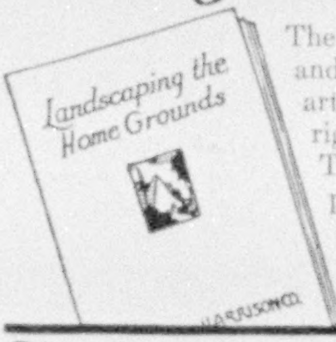

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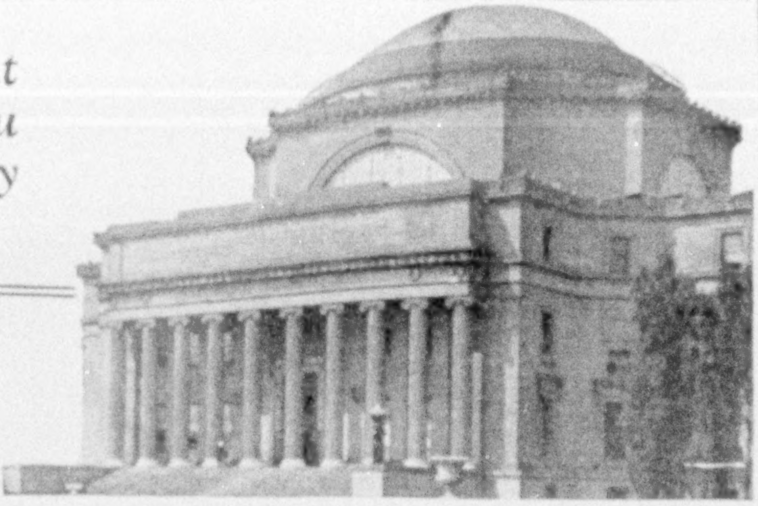

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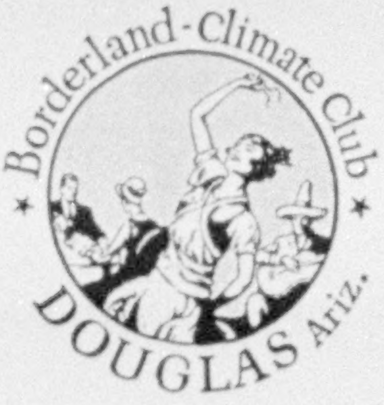

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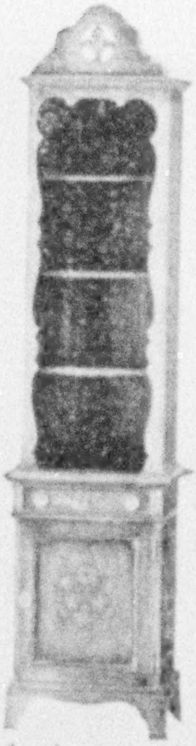

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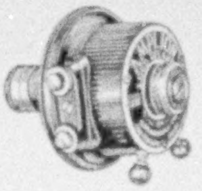

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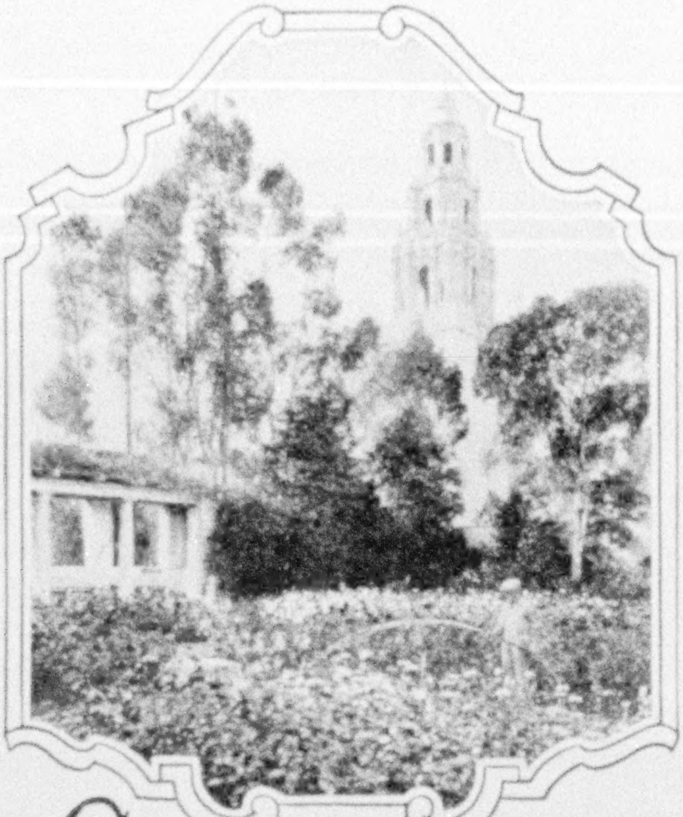

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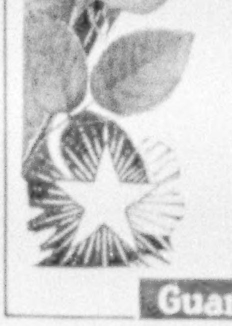

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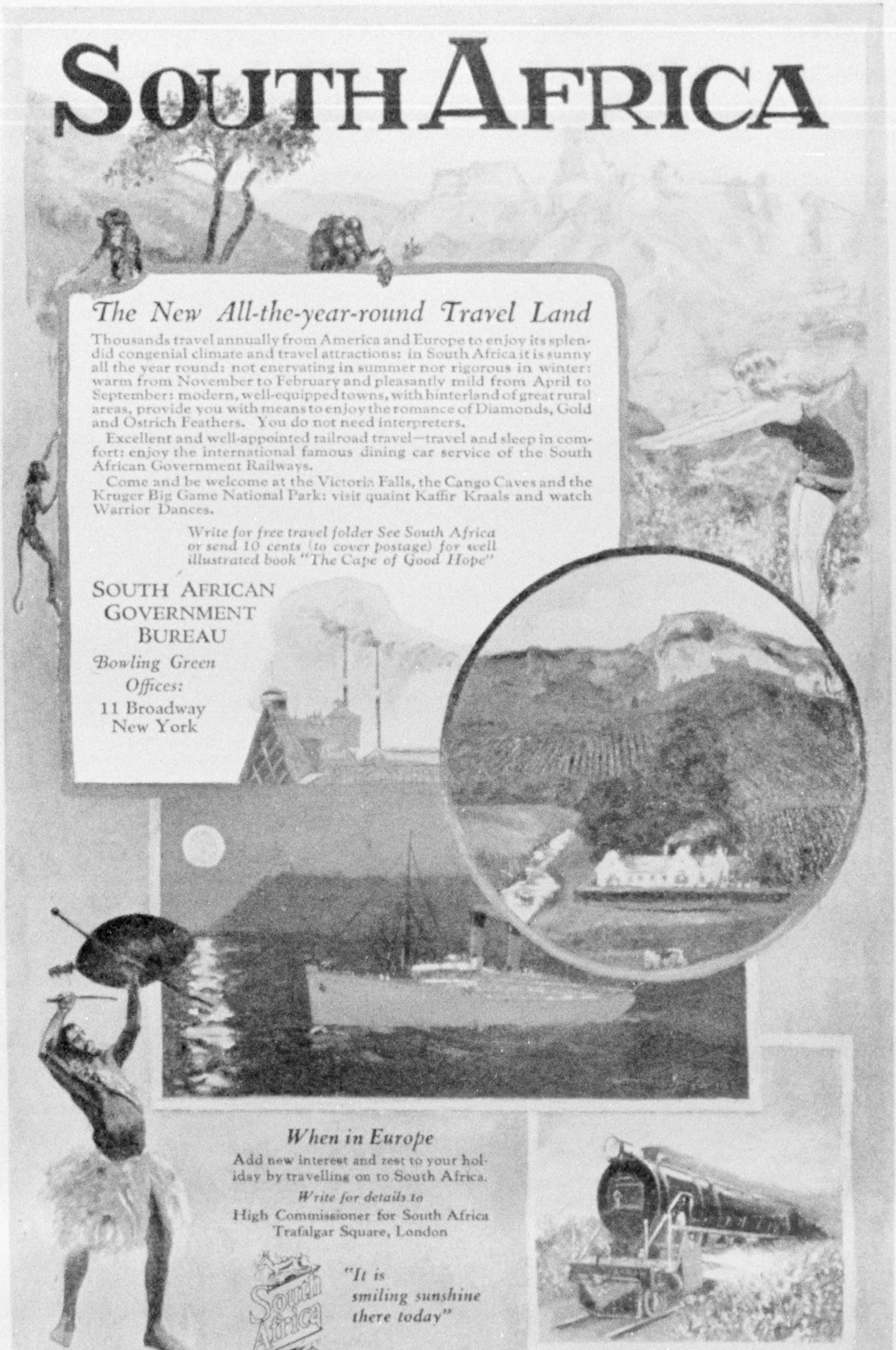
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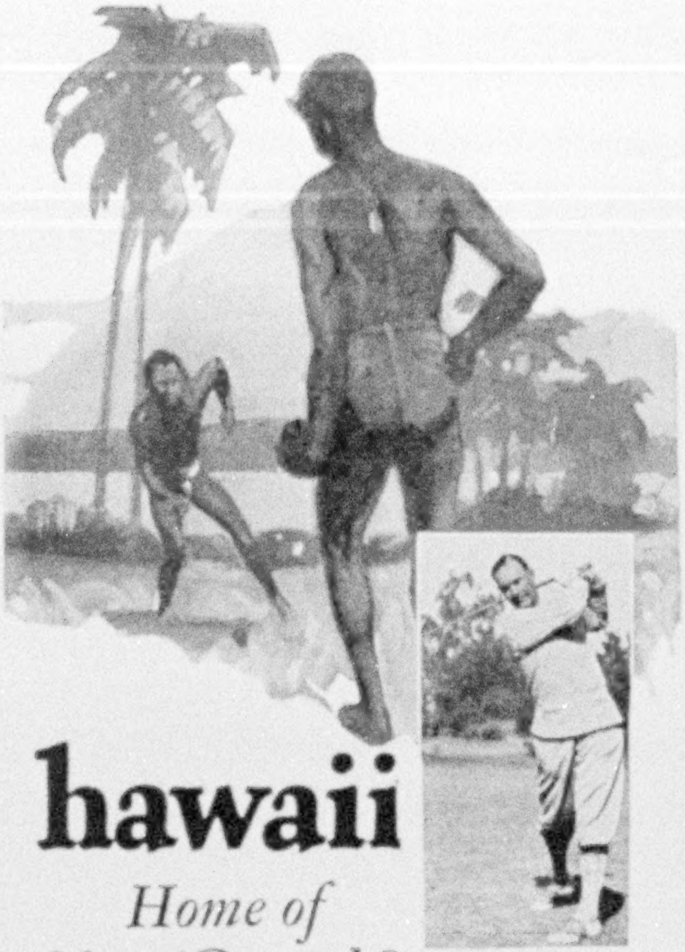

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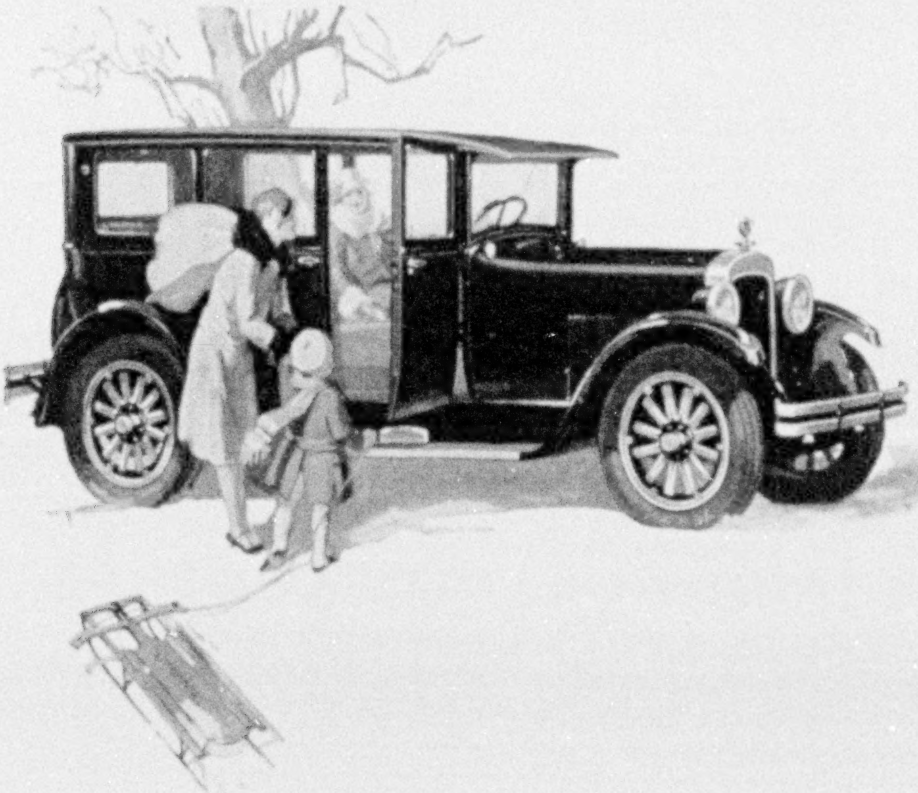

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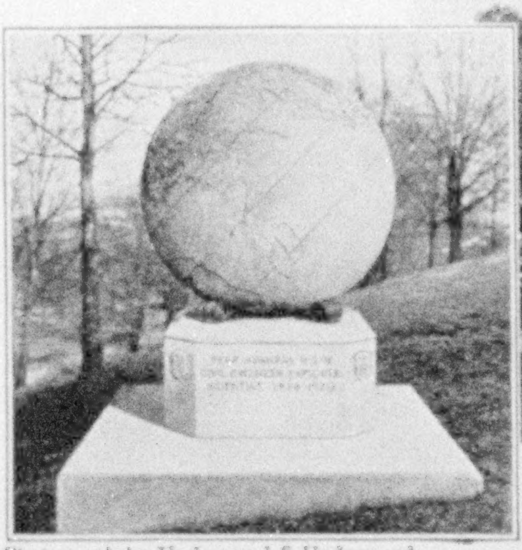

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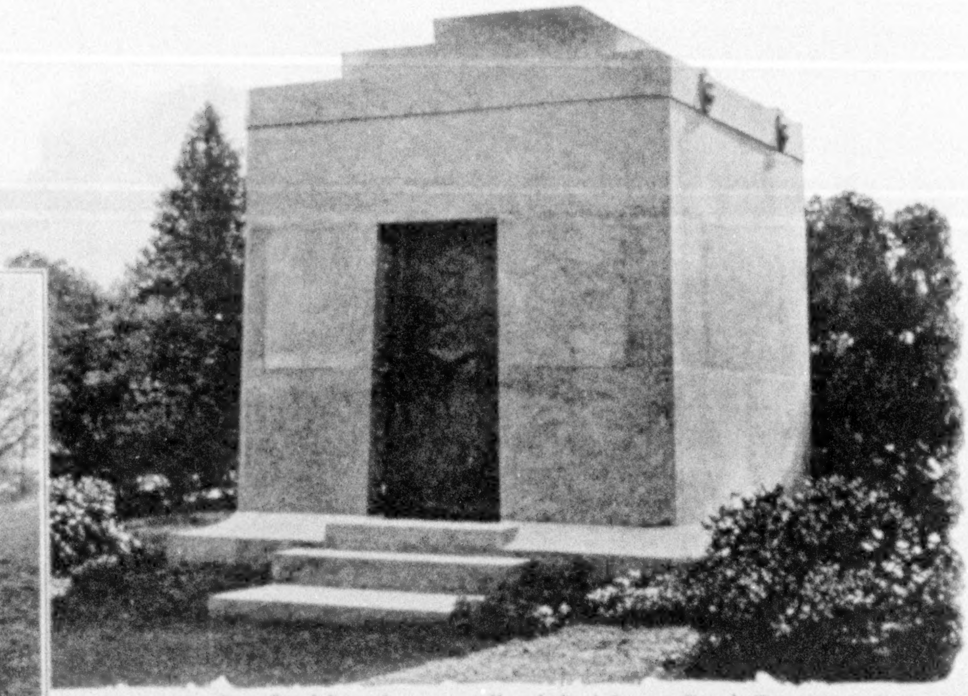

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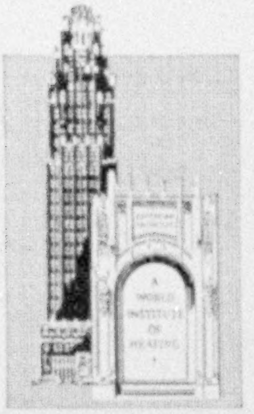

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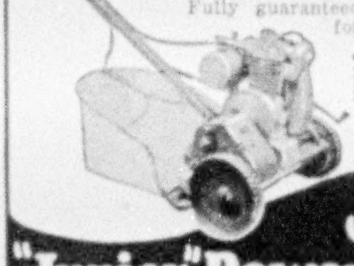

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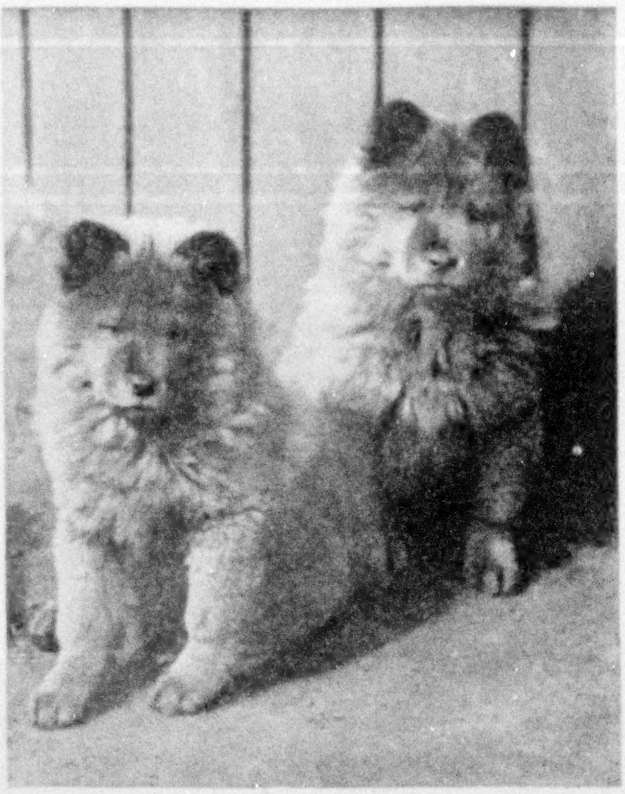

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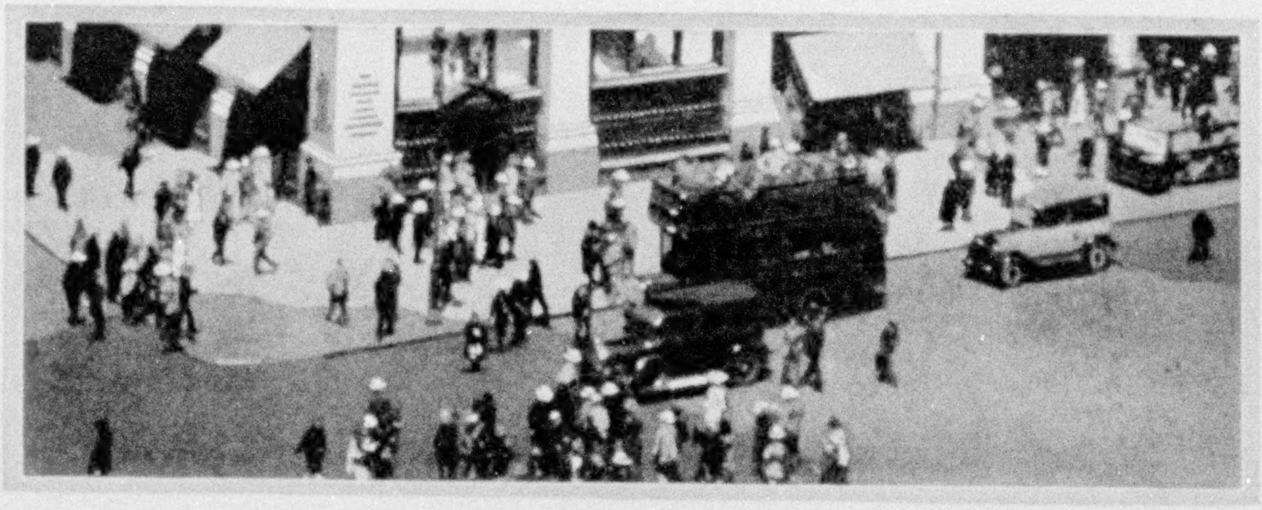

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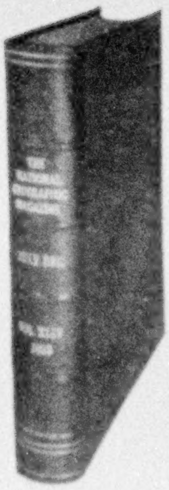

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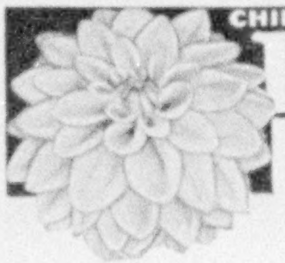

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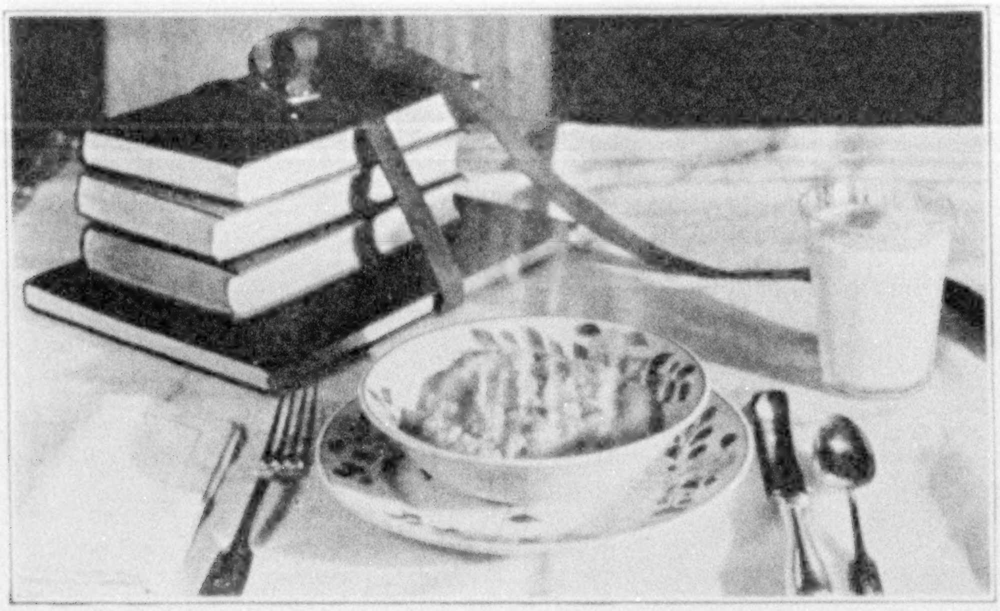

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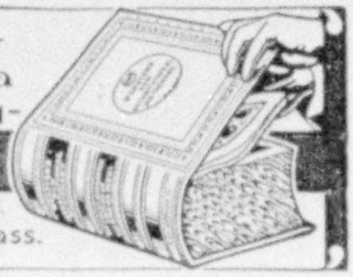

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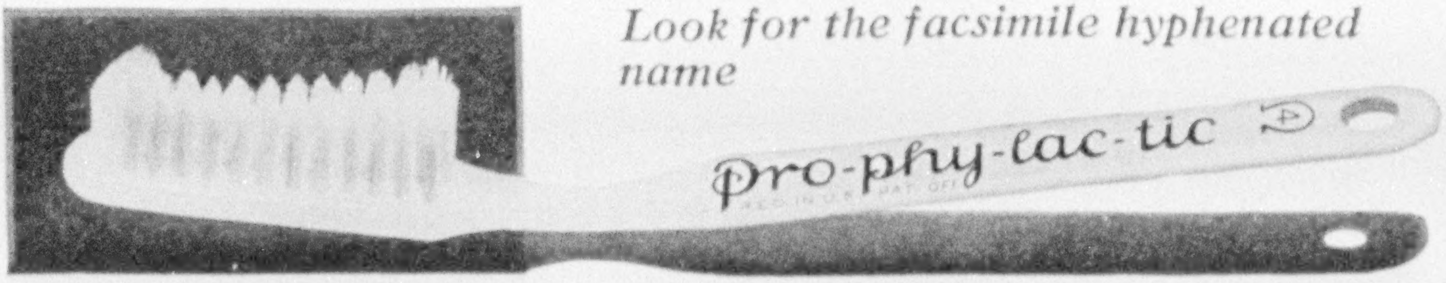

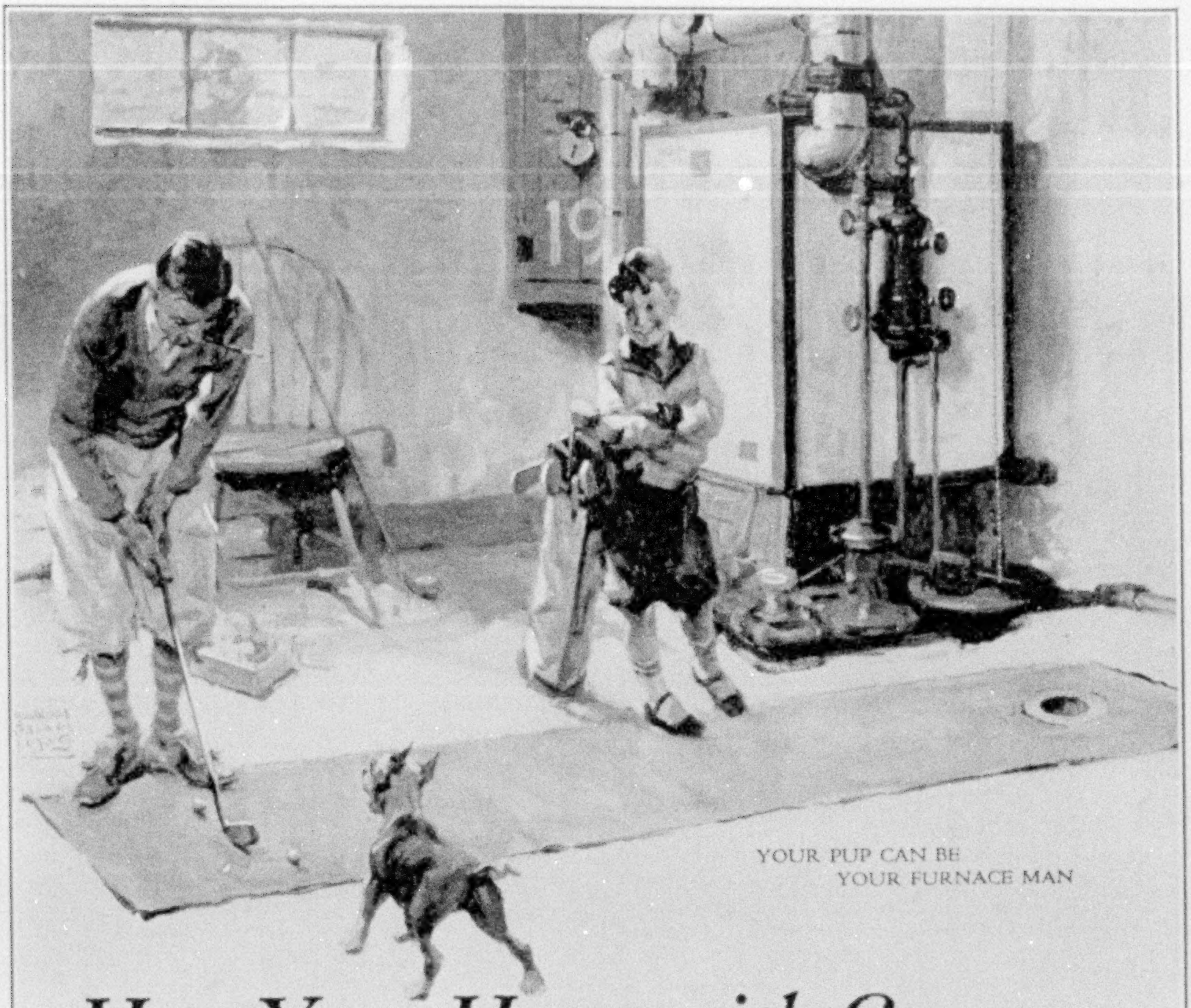

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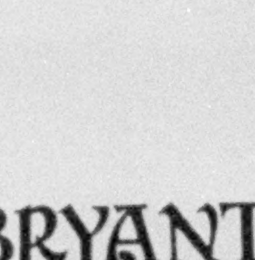

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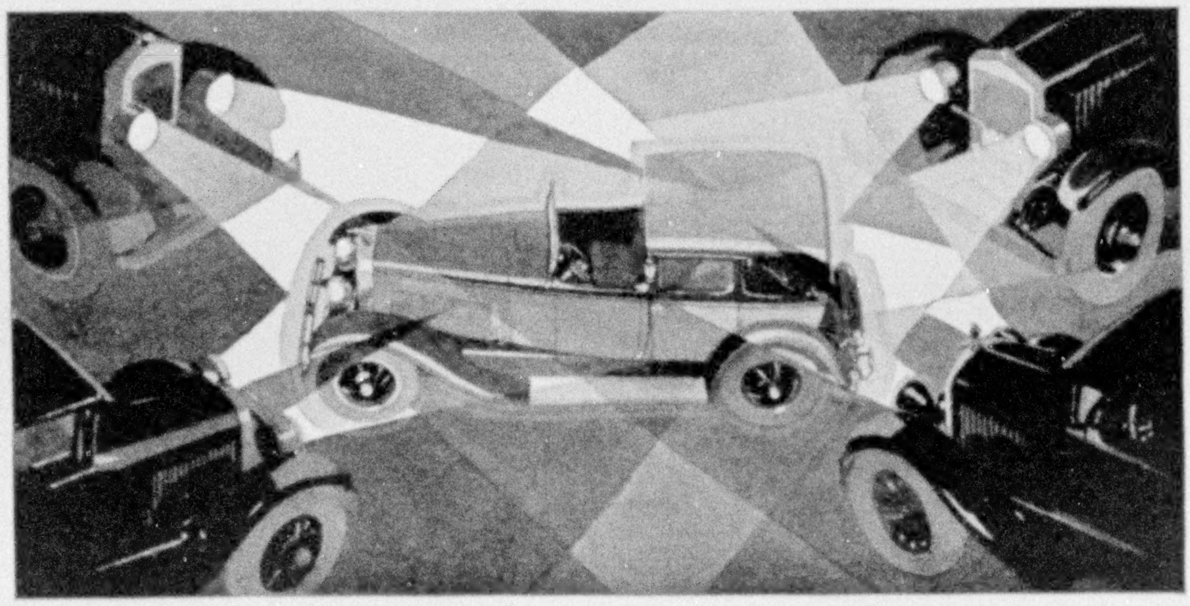

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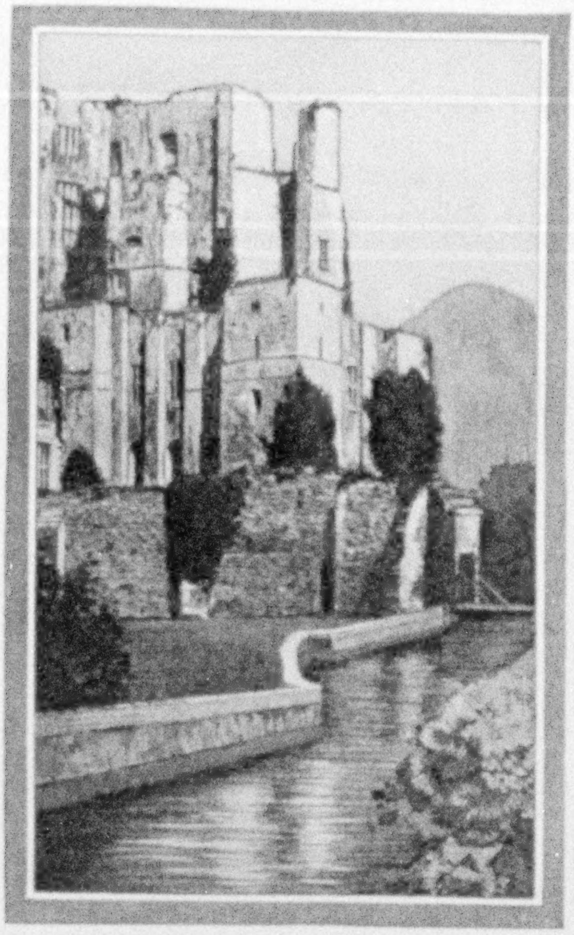

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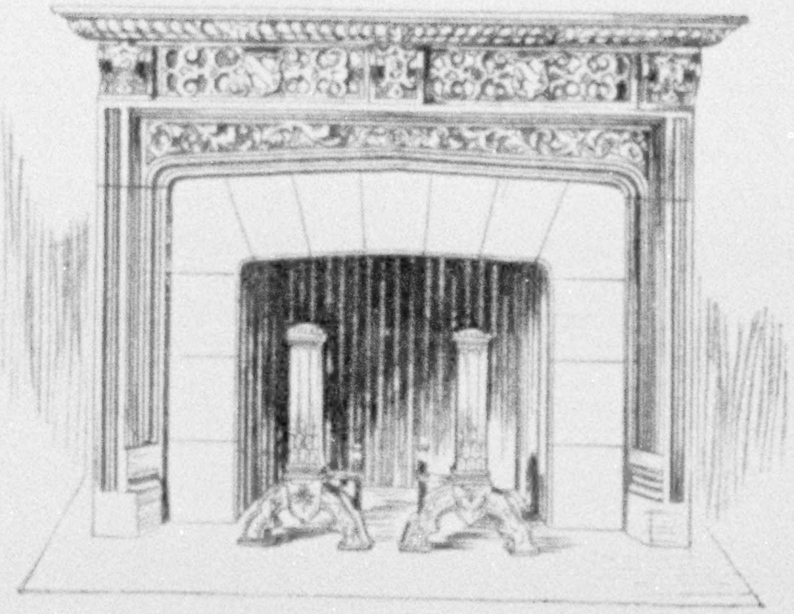

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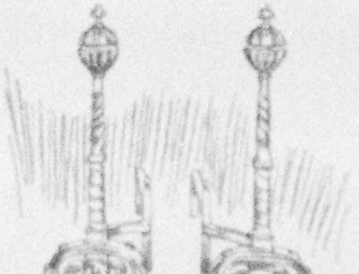

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